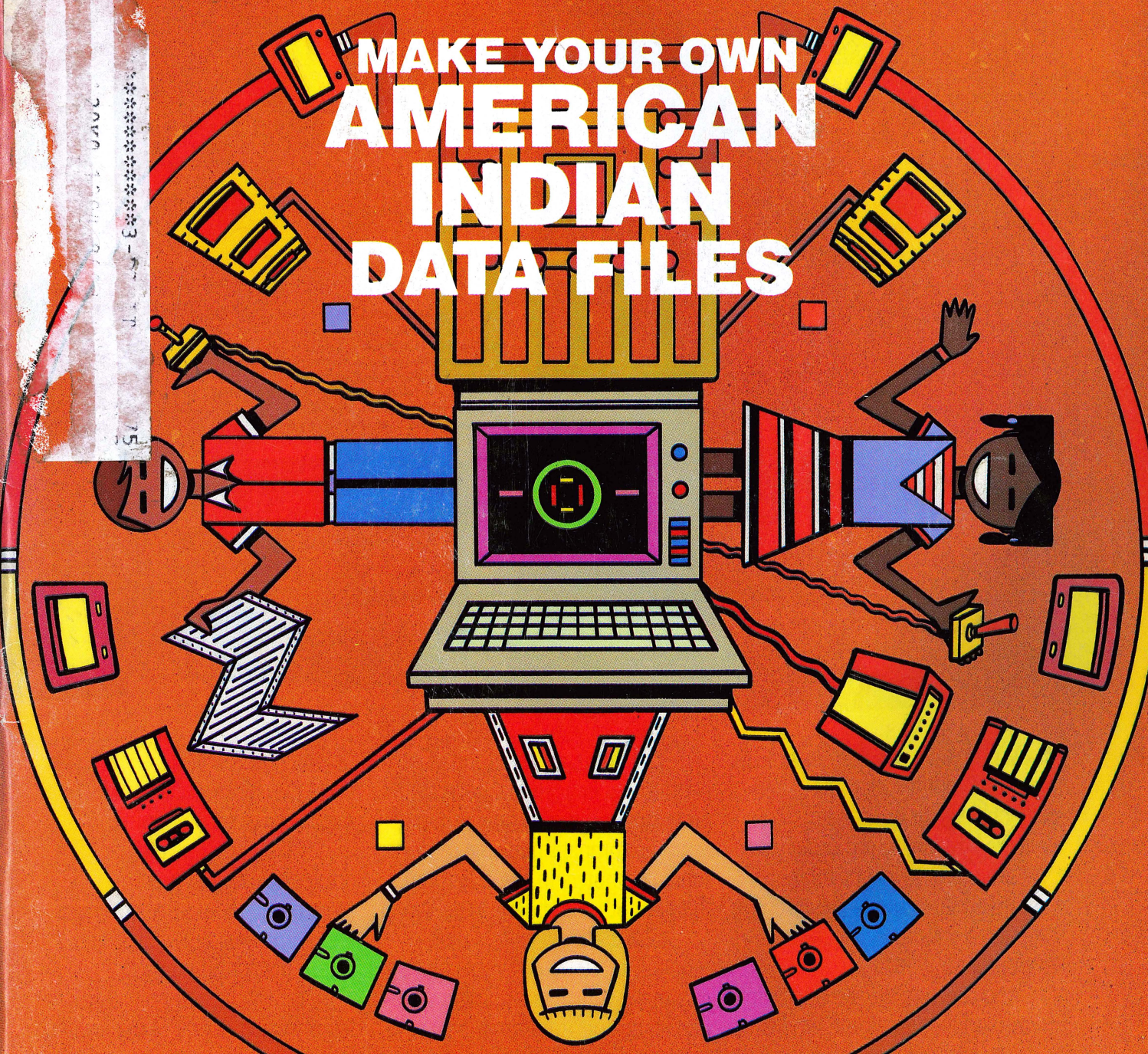
Volume 3, Number 3 $3.50

Scholastic's Magazine for Today's Elementary Classrooms

TEACHING and computers®

Published by Scholastic Inc. November/December 1985

MAKE YOUR OWN AMERICAN INDIAN DATA FILES

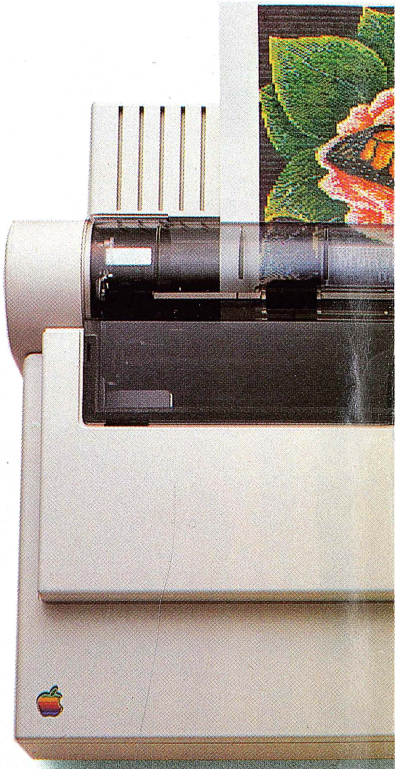


How to Write Better Letters

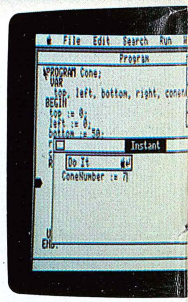
Deck the Halls with Logo Ornaments!

Look what we did over your summer vacation.

Our new ColorMonitor II makes kids even more attracted to computer learning. And you can switch it over to a high resolution, 80-column black and white screen for easier-to-read word processing.



Our new ImageWriter II can produce crisp, color graphics and near letter-quality text. By adding our sheet feeder accessory, you can feed single sheets through the printer without removing the tractor paper. And the ImageWriter II is completely compatible with the software and hardware you're using now.



Our new Apple II Instant Pascal software makes it a lot easier for students to learn basic programming. And a lot easier for you to teach it, since the package comes complete with a Houghton-Mifflin textbook, training disk and handy pocket reference guide.

While you were away recovering from nine months of spelling bees and bubble gum in little girls' hair, we were busy doing our homework.

Talking to teachers. Interviewing administrators. Researching the latest trends in curriculum development.

And running up our electricity bill by working nights and weekends.

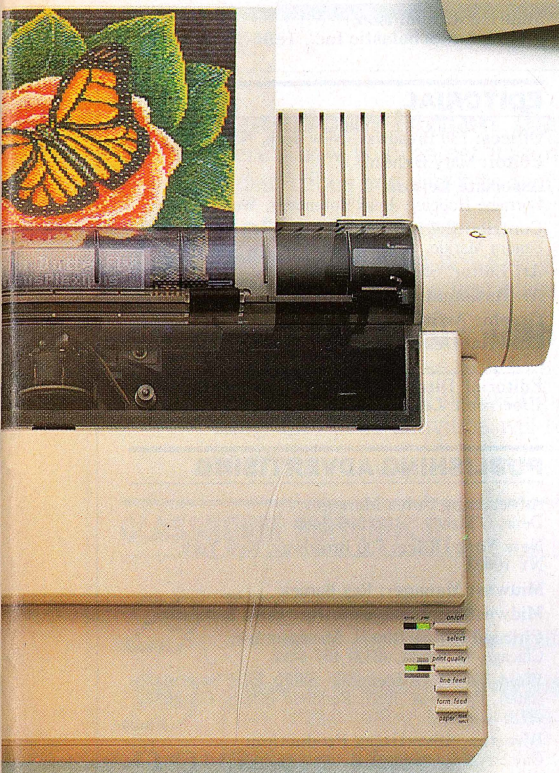
The result, a new group of peripherals and educational software programs you would only expect from the company that's put more personal computers in the classroom than any other company in the world.

Like the new Apple® ColorMonitor II. With 16 different colors, it can make educational programs like Microzine® even more attractive to kids. And you can switch it over to an 80-column black and white screen for word processing.

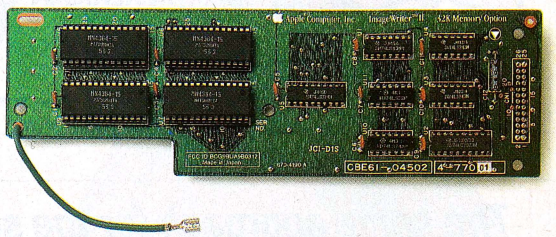
The Apple ImageWriter™ II printer, which can produce full-color printouts of artwork, charts and graphs. Or near letter-quality text in black and white.

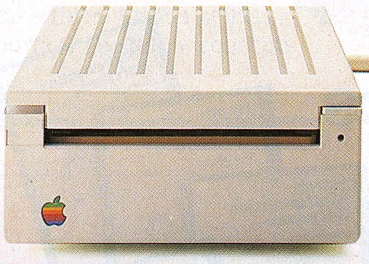
We also have a new, easier-to-learn version of one of the leading

Our new 300/1200 baud Apple Personal Modem plugs right into a standard wall receptacle. So you can use it to talk to your school district's mainframe, teacher forums or database libraries all over the country, without making your desk look like a computer store.

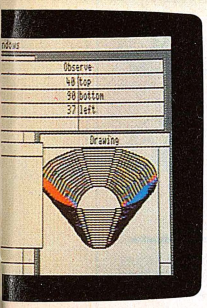


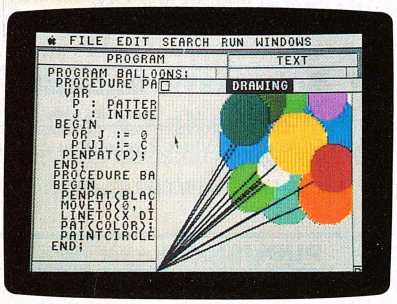
By adding our ImageWriter II 32K Memory card to your ImageWriter II, you don't have to wait for the printer to stop printing before you start working again.

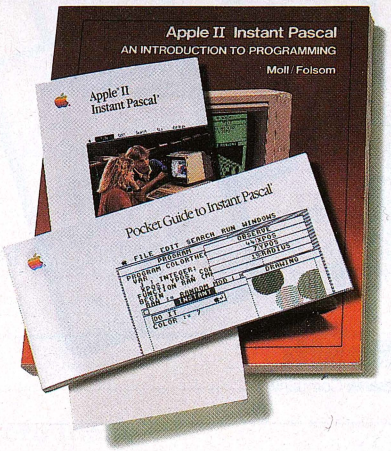




With our new Apple II Unidisk 3.5 storage device, you can keep a whole desk full of data on a single 800K microdisk.







programming languages used in high schools called Apple II Instant Pascal.® It lets students actually see their programs develop on the screen as they write them. So they can catch their mistakes as they make them.

Our new Apple II Unidisk™ 3.5 storage device that lets you put up to 800K of data on a single 3½" microdisk. Giving administrators ample room to store their student files. All the way back to 1947.

And a new Apple Personal Modem that can put administrators on good speaking terms with your district's mainframe.

They're all fresh off our assembly line, logos barely dry, ready to help you through another year of lesson plans and stray pet arachnids in the classroom.

Which means now, we can finally do what we've been looking forward to doing all summer:

Start to work on more new Apple products.

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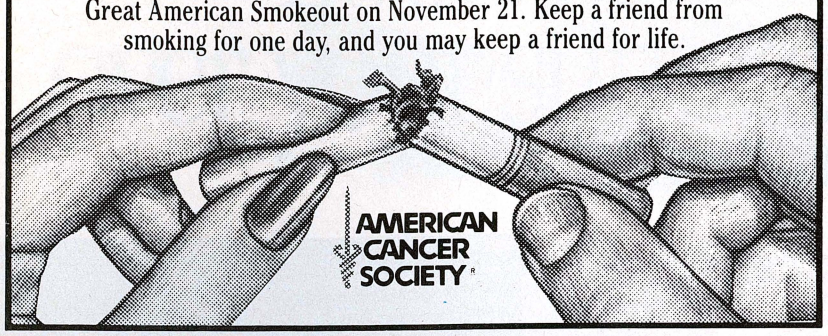
HELP A FRIEND BREAK A HABIT ON NOV. 21

If you have friends who smoke, help them quit during the Great American Smokeout on November 21. Keep a friend from smoking for one day, and you may keep a friend for life.



The same approach for the same success

Heath Mathematics Software

Dennis/Dilley/Rucker Grades 1–4

Developed by the same author team as the highly successful textbook series, these textbooks provide ample drill and practice in each of the four basic skills areas: Addition, Subtraction, Multiplication, and Division. STEP-BY-STEP MASTERY at each level ensures the pedagogical success of these programs. The Tournament package allows students to challenge themselves and each other as they have fun with math! Save on complete set of 5 programs.

These programs run on the Apple II family with 48K.

DC Heath
A Raytheon Company

Order Form

Return form to:
D.C. Heath and Company
DCH Educational Software
125 Spring Street
Lexington, MA 02173

Qty.	Code	Title	School Price	Amt.
_____	09972-4/TC	Heath Mathematics—Addition	45.00	_____
_____	09973-2/TC	Heath Mathematics—Subtraction	45.00	_____
_____	09974-0/TC	Heath Mathematics—Multiplication	45.00	_____
_____	09975-9/TC	Heath Mathematics—Division	45.00	_____
_____	10096-X/TC	Heath Mathematics—Tournament	45.00	_____
_____	**10219-9/TC**	**Heath Mathematics—Set of 5**	180.00	_____

Add postage and handling 1.50

Authorized Signature

Add appropriate sales tax

Name

Total enclosed

School

City State Zip Purchase Order #

Remember, all of our programs can be ordered for 30-day preview!

TEACHING and computers®

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10 American Indian Data File
Here's how you can set up a data base of facts on American Indian tribes and use it to teach U.S. history and geography.

17 Better Letters
Deliver these word processing activities to your students and they'll learn to write first class letters!

22 Deck the Halls with Logo Ornaments!
December 'tis the season to decorate classroom halls and walls. This year use Logo programming to make three joyous holiday hang-ups. (The activities will teach important geometry concepts as well!)

10 American Indian heritage.

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"History of Electronic Computing."

29 *T&C*'s Poster Worksheets
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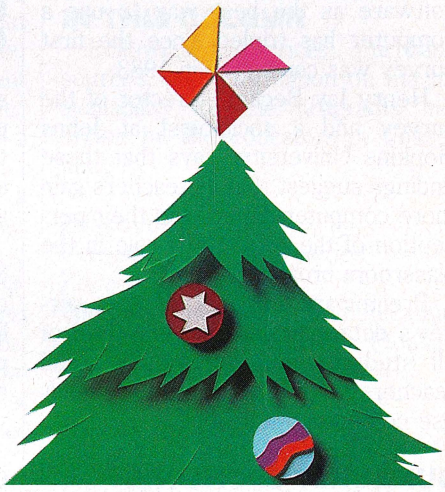
A four-page mini-magazine for kids who love computers.

50 Program of the Month
Healthy Heart, a program that evaluates students' physical condition based on their heart rate.

60 BASIC Challenge Cards
Four task cards on using the PRINT and IF...THEN commands in BASIC programming.



22 Holiday hang-ups.

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COVER ILLUSTRATION:
BRAD HAMMAN

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UPDATE

NEWS FOR COMPUTER-USING TEACHERS

COMPUTER USE BROADENS IN SCHOOLS

More than 15 million students and 500,000 teachers have access to at least one of the more than one million computers in elementary and secondary schools across the country, according to the findings in the Second National Survey of Instructional Uses of School Computers. These statistics have increased more than 50 percent since last year.

The survey also reports that although the majority of teachers still rank drill-and-practice software as the "most useful" application of classroom computers, utility programs (such as data base and word processing programs) are becoming increasingly popular in classrooms. The number of teachers rating this type of software as the best way to use a computer has tripled since the first survey was conducted in 1983.

Henry Jay Becker, director of the survey and a sociologist at Johns Hopkins University, says that these findings suggest that as teachers gain more computer experience their perception of the computer's role in the classroom broadens.

Preliminary analysis of the survey's data indicates that one-third of all students and one-fourth of all teachers across the country *regularly* use computers in school.

SUNBURST SPONSORS CONTEST

If you have imaginative ideas on how to use a Sunburst program in the classroom, then you'll want to enter the Sunburst Suggestion Contest.

Sunburst Communications Inc., publishers of educational materials, is sponsoring this contest to find out how teachers use its software in classrooms. Popular software titles published by Sunburst include *The Factory, The Pond,* and *The Incredible Laboratory.*

To enter, write down your teaching suggestions for a specific Sunburst program in 1,000 words or less and send them to: Contest, Sunburst Communications Inc., 39 Washington Ave., Pleasantville, NY 10570-9971. Entry deadline for the Sunburst Contest is November 15, 1985.

Sunburst will judge the entries on originality, innovation, and educational value. Three winners will be selected. Each will receive a library of 10 Sunburst programs.

ATARI BULLETIN BOARD

Atari owners equipped with a modem can log onto Atari Base, a bulletin board system operated by Atari Corporation. The board posts information on current Atari products as well as on upcoming products. A message system and a list of Atari user groups throughout the country is also available on the board. The board can be reached 24 hours a day at 408/745-5308.

SCHOOLS SPEND $520 MILLION ON COMPUTERS

Elementary and secondary schools spent a total of $520 million on computer hardware and software during the 1984-85 school year, according to a recent study conducted by Talmis, a marketing research firm.

The study states that during 1984-85 a total of $390 million was spent on hardware and a total of $130 million was spent on software. Talmis predicts that $150 million will be spent on software during the 1985-86 year.

The study also reports that Apple Computer Company continues to dominate the education market. Of the schools purchasing hardware in the 1985-86 school year, 70 percent bought Apple computers, 13 percent bought Commodore computers, six percent bought Tandy (Radio Shack) computers, and five percent bought IBM computers.

CHEAP WORD PROCESSOR

Priced at $9.95, *Textra 3.1* is one of the most inexpensive word processing programs on the market. By selling directly to consumers and bypassing retail outlets, Ann Arbor Software, publisher of *Textra 3.1,* is able to offer the program at this bargain price.

Textra 3.1 is available for the IBM PC and comes with a 175-page documentation manual. To order the program, send $13.95 ($4 for postage and handling) to: Ann Arbor Software, 407 North Main St., Ann Arbor, MI 48104.

FREE BOOKLET ON COMPUTER CRIME

Concerned about computer security in your school? Send for "Computer Security Issues and Answers," a free 24-page booklet containing articles on hardware and software security and computer crime prevention. To request the booklet, send a 9" x 12" self-addressed envelope and 73 cents to cover postage to: Phyllis St. Martin, Computer Security Institute, 43 Boston Post Road, Northborough, MA 01532.

YOUNG ASTRONAUT PROGRAM

For an annual membership fee of $20, any group of five or more elementary students can form a school chapter of the Young Astronaut Program. Throughout the year, each chapter in the program receives a series of packages containing space-related science and math activities to try. Some of the activities require the use of a computer. Chapters equipped with a modem can tap into Astronet, an electronic mail service that provides information and updates on the space program.

Contact: Edith Westermann, Young Astronaut Council, PO Box 65432, Washington, DC 20036.

COMPUTER TEACHERS SWITCH TO PRIVATE INDUSTRY

Once teachers learn how to use computers, they tend to leave their school system for higher paying jobs in private industry, according to results from a recent study by the Rand Corporation.

Rand researchers suggest that if communities want to keep these teachers in their school systems, they should increase the teachers' salaries and expand their job responsibilities to training other teachers in computers and to selecting hardware and software for their schools. ■

ASK THE EXPERTS

ANSWERS TO YOUR COMPUTER QUESTIONS

Every month in this column, experienced computer teachers and technical consultants from across the country offer advice about hardware, software, classroom management, philosophy, and other issues associated with educational computing. If you have a question, write to Ask the Experts, *Teaching and Computers,* 730 Broadway, New York, NY 10003.

SCIENCE SOFTWARE

Q ***I teach science to elementary school students. Are there any software programs that are appropriate for my students?***

Howard Katz
Twin Falls, IA

A Ann Dana, computer consultant for District 181 in Hinsdale, Illinois, recommends Heath Science Software, a series of interactive computer programs for students in fourth to sixth grades. The programs reinforce a variety of science topics including insects, simple machines, solar systems, heat energy, ocean life, and animal classifications. Ann uses them to complement class and textbook learning. Her favorite program is *Electricity and Magnetism,* an interactive treasure hunt game that helps students master basic electric concepts.

David Fiday, media director for Palos East School in Palos Park, Illinois, recommends three science programs for upper elementary students: *The Incredible Laboratory, Discover,* and *Discovery Lab. The Incredible Laboratory* is a problem-solving game that gives children exposure to the logic in scientific methods. *Discover* and *Discovery Lab* are simulations that let students run computerized laboratories.

HARD VS. FLOPPY DISKS

Q ***I've read a lot about hard disks lately. What are they? Should I switch from floppy disks?***

Melissa Newport
Phoenix, AZ

A A hard disk is the same size as a floppy disk, but it is made of less flexible material. Most hard disks are permanently enclosed in their own drives, so you never need to change disks. You store all programs you and your students create or use on this one disk.

The advantages that hard disks offer include increased capacity, speed, and reliability. Hard disks hold more information than floppy disks. For example, a 10-megabyte hard disk will hold more data than 70 Apple floppy disks.

Hard disks also send information faster than floppy disks. And, because they are sealed in an environment that is free of dust and smoke, hard disks require less maintenance than floppy disks.

Most classroom computers don't need the speed of disk access that hard disks provide, nor do they need to store the volume of data that makes a hard disk drive worthwhile. Besides, it's often more convenient for every student to have his or her own disk, rather than a section of a hard disk.

On the other hand, if you use a large variety of programs on your computer system, you may benefit from storing the programs permanently on a hard disk rather than maintaining a library of floppy disks. Furthermore, a hard disk drive can serve as the center of a network of computers that share storage and peripherals.

EXPANDING YOUR MEMORY

Q ***I have an Atari 400 in my classroom. Lately, I've had trouble finding software to run on my machine because of its limited memory (16K). Is there a device that will increase my computer's memory so it can run more software?***

Brian Glick
Waltham, MA

A You're in luck. Although many companies no longer sell memory upgrades for the Atari 400, a company called Tiny Tek sells a series of circuit boards that add different amounts of memory to the Atari 400. A product that upgrades the computer to a total of 48K costs $69.95 and comes with a lifetime warranty. (For more information, contact Tiny Tek, Route 1, Box 795, Quinlan, TX 75474; 214/447-3025.)

According to technical consultant Lance Paavola, installing an upgrade board on an Atari 400 is a fairly simple matter. The upgrade board comes with complete installation directions. Be prepared to open up your computer and do a little soldering, though.

Owners of other computer models can expand their machine's memory with other devices, such as plug-in cartridges, cards, or expansion units. They should ask a dealer which product works with their computer.

SOFTWARE RECOMMENDED IN THIS COLUMN

Following are prices, purchasing sources, and information on machine availability for the programs mentioned by the educators in this column.

Discover
Computers: Apple II series
Price: $59
Source: Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570; 914/769-5030.

Discovery Lab
Computers: Apple II series
Price: $49
Source: Minnesota Educational Computing Corporation (MECC), 3490 Lexington Avenue North, Saint Paul, MN 55112; 612/481-3500.

Electricity and Magnetism
Computers: Apple II series
Price: $60
Source: D.C. Heath Software, 125 Spring Street, Lexington, MA 02173; 800/428-8071.

The Incredible Laboratory
Computers: Apple II series; Atari (48K); Commodore 64; TRS-80 Color Computer
Price: $59
Source: Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570; 914/769-5030. ■

Keep your kids after school.

Here's a foolproof way to teach kids a lesson they won't forget:

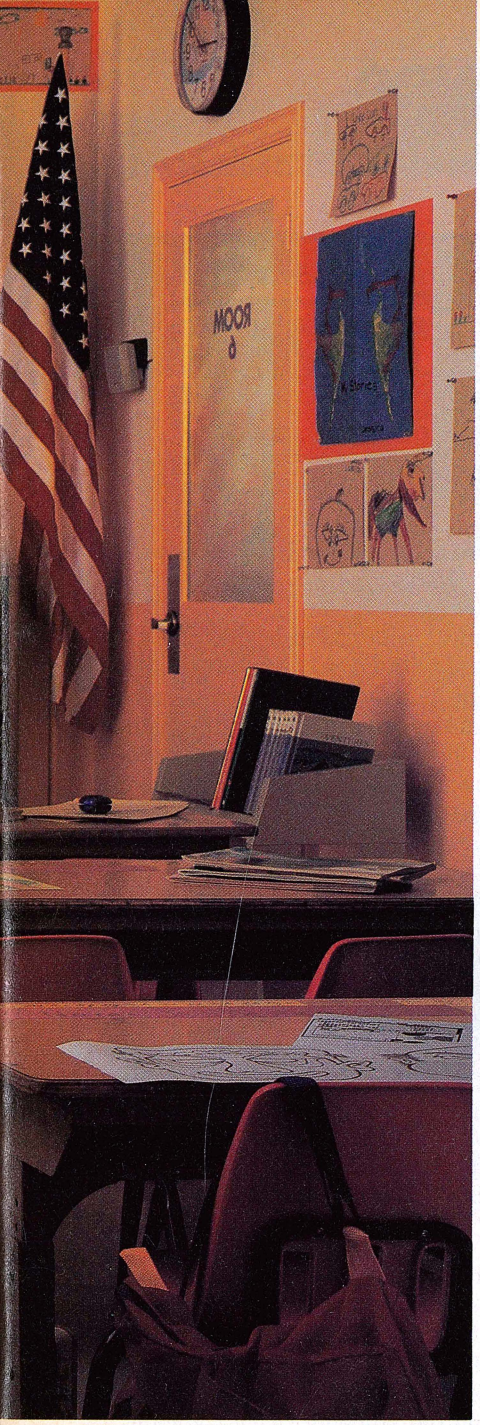
Start an Apple Computer Club.

Apple® personal computers are already used in elementary and secondary schools more than all other personal computers combined. To help kids learn everything from the alphabet to zoology.

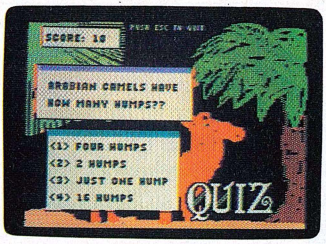
But, at Apple, we've always believed that just because school ends when the bell rings, it doesn't mean a child's education should.

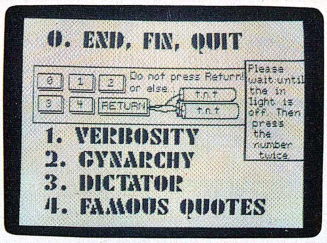
So in 1983, we sponsored the first of the more than 15,000 Apple Computer Clubs that have been founded worldwide.

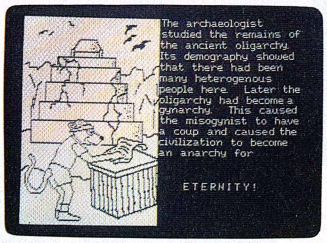
Not just to show kids all the amazing things Apples can do. But to show kids all the amazing things *they* can do.

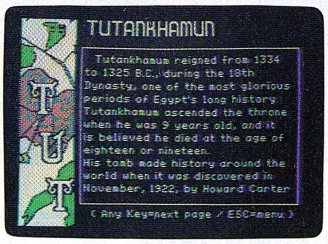


programming and community service projects to our annual Competition '86, individual students and clubs can win an Apple IIc personal computer system, software and accessories. And grand prize winners can also earn a free trip to Washington, D.C.









Students in Apple Computer Clubs have written programs that do everything from teaching 3rd graders to spell, to tracking which supermarkets in the community have the lowest prices each week.

But enough about kids. Let's talk about you for a minute.

To help you get started, we'll send you The Handbook. It contains complete guidelines for running an Apple Computer Club, and outlines the entire Apple Challenge Program. And seven times a year, you'll receive Computer Club News, an advisor newsletter that will keep you up to date on the latest club activities.

You'll receive The Handbook, which explains how to run an Apple Computer Club. Along with a periodic newsletter to keep you up on the latest news.

You'll also be eligible to win computer equipment and a trip to Washington by entering our advisor category in Competition '86. Your assignment: develop innovative methods for integrating computers into the regular curriculum.

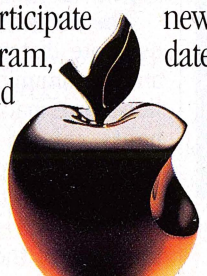
And we have an Advisor Incentive Program where you can earn free club accessories, software and peripherals. Not to mention a trip to Hawaii for you.

To find out more about starting an Apple Computer Club at your school, call 800-343-1425. We'll be glad to answer any of your questions.

Just as long as they don't have anything to do with algebra.

And to reward them for doing it.

This year, as members of an Apple Computer Club, students will have the opportunity to participate in our new Challenge Program, earning Red Apple and Gold Apple Awards in categories like computer literacy, word processing, graphics and programming in Logo. By submitting



In our annual Competition '86, students and advisors can win software, computer equipment and a trip to Washington, D.C.

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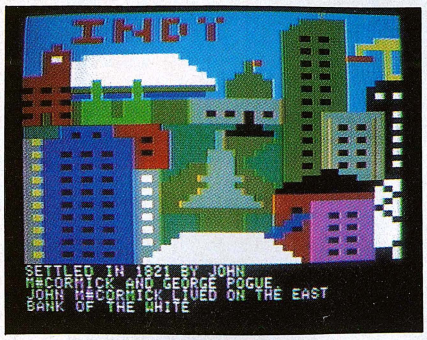
CLASSROOM HAPPENINGS

BY LESLI ROTENBERG



Skyline of Indianapolis

OUR TOWN, INDY

How much do your students know about the town in which they live? Fifth grade students at Grassy Creek School in Indianapolis, Indiana, learned all about their hometown by creating a city tour on their classroom computer.

The tour is actually a computer program called *Our Town, Indy: Crossroads of America.* It features colorful graphics and animation that the children created with BASIC. The animated graphics portray the daily business of important city landmarks such as race cars zooming around the Indy 500 racetrack, step-by-step construction of the tallest building in town, and jets taking off from Indianapolis International Airport.

The program also includes written reports on the history and operations of the landmarks. To research their reports, students wrote letters requesting information about their respective landmarks, searched for data in libraries, and, in most cases, visited the actual sites to conduct interviews with officials who work there.

Farmers' market in Indianapolis

Students learned some fascinating facts about their city. For example, one student discovered that Indianapolis' Union Station was the first public facility anywhere to use the light bulb. Another student learned that more than 1,000 planes fly in and out of Indianapolis Airport daily at an average of one every minute.

Martha Main, who is the school's computer coordinator and the organizer of *Our Town, Indy*, hopes that the project will inspire teachers across the country to have their students develop similar computer programs about their hometowns. Then, Martha says, teachers could swap disks and use them to teach their students about other parts of the country. Martha says she would be willing to coordinate a national *"Our Town"* effort.

If you are interested in particpating in such an effort and would like a copy of *Our Town, Indy* (for Apple computers), send a disk and a stamped envelope to Martha Main, Grassy Creek School, 10330 E. Prospect, Indianapolis, IN 46239; 317/894-3361.

Historic Indianapolis home

COMPUTERS IN SPACE

First grade students at School of the Future in Cambridge, Massachusetts, travel to outer space without leaving their classroom. They use their classroom computer system and Logo programming to simulate space travel.

To prepare for their journey, two student astronauts sit inside a refrigerator box that they decorated to resemble a space capsule. The space capsule houses a computer system that's connected by video cable to a second monitor in the classroom.

The second monitor is located on a table called Ground Control. On both monitors, teachers Phyllis Kalowski and Liz Della Paolera tape identical acetate overlays that show various planets, such as Mars, Pluto, Neptune, Uranus, Jupiter, and Earth.

The student astronauts maneuver their spaceship (actually a Logo turtle) to each of the planets on the monitor by entering Logo commands into their space capsule computer. The commands, such as FORWARD 20 and RIGHT 30, are issued by the students working at Ground Control. Although the students really communicate by hearing each other's commands spoken from across the room, they wear radio headphones to simulate the equipment aerospace engineers use.

A computer inside this craft is connected by cable to another class computer.

The exercise teaches children to estimate distances, follow directions, and communicate clearly. If directions are inaccurate, student astronauts inform their classmates at Ground Control with warnings, such as, "You're taking us too far off course. We're going to crash (into the edge of the computer screen)!" ■

Lesli Rotenberg is associate editor for *Teaching and Computers.*

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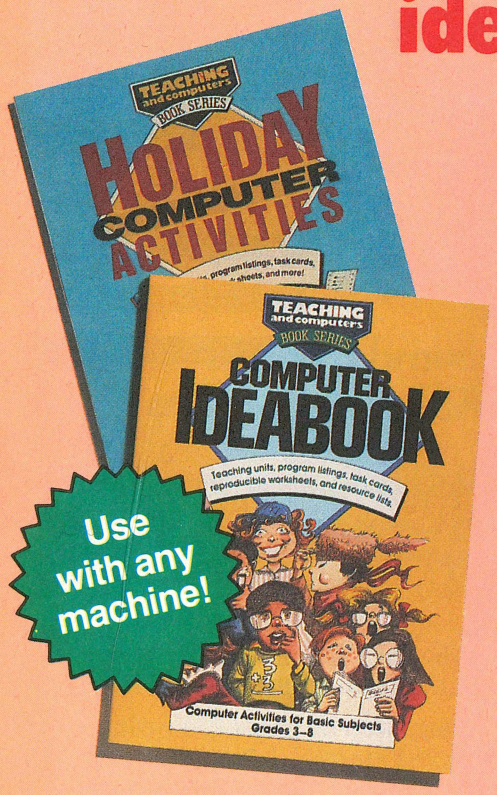

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BY LESLI ROTENBERG

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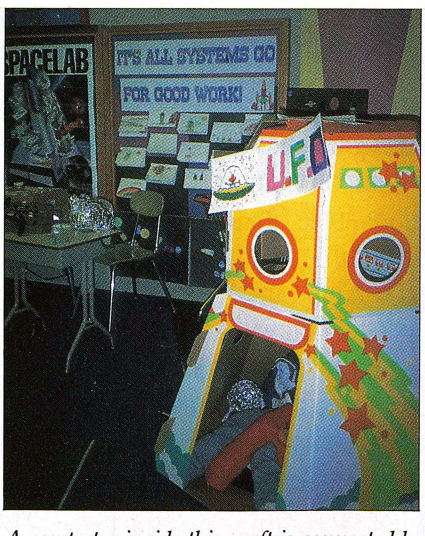

A computer inside this craft is connected by cable to another class computer.

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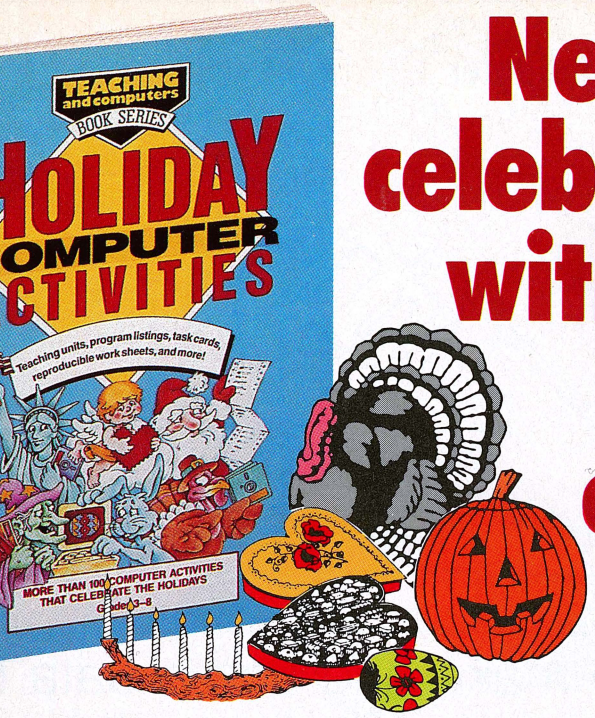

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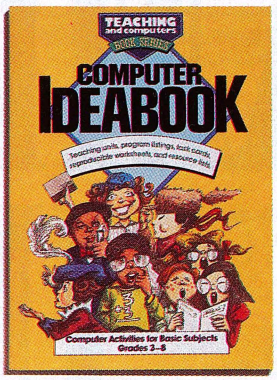

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By Beverly Hunter

How to make and use a data file on American Indian cultures

AMERICAN INDIAN DATA FILE

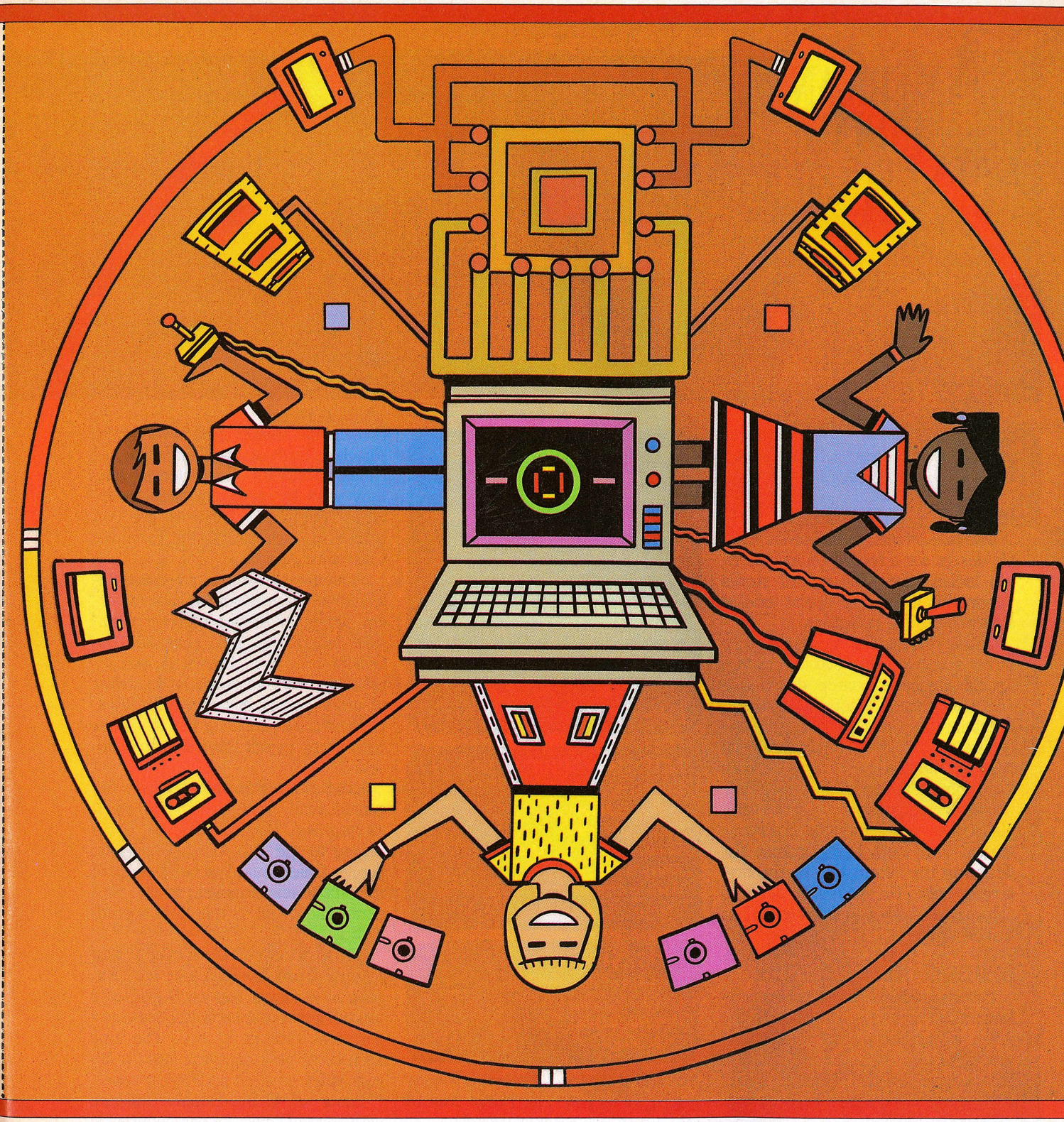
Americans who live in today's dry, desert states lead pretty much the same lifestyle as those who live in our fertile, mountain states. Modern technology allows us to control many of the effects environment might otherwise have on lifestyle.

Lifestyles across America weren't always that homogeneous, though. Students can learn the ways that environment once greatly influenced people's lives by studying the diverse American Indian cultures that settled these lands long ago.

In this teaching unit, we'll show you how to set up a data file of geographic, historical, and religious facts on different groups of Native Americans. Then we'll show you how to use the data in the file to learn more about American Indians and the role environment played in shaping their varied cultures.

To build and use the data file described in this unit, students must have access to at least one computer. A relatively small portion of students' time is spent entering and retrieving information on the computer; most is spent on library research and on analyzing data obtained from the file.

All of the activities in the teaching



Brad Hamman

unit were designed to be used with the *Scholastic pfs: file* data management program, but they can be adapted easily for use with any other data management program. (See *Teaching and Computers* May/June 1985 for reviews of reasonably priced data management programs.)

Access to a printer is essential for this project. It is also helpful to have more than one monitor connected to the computer, so that all students can see a screen during demonstrations.

If you have never used data management software before, read the box titled Data Base Primer, page 15, for important introductory information.

READ ABOUT AMERICAN INDIANS

Before you introduce students to the data file design in this teaching unit, give them a preliminary reading assignment on American Indians. The material you assign depends on your students' reading level and the resources you have at hand. A chapter in your social studies textbook will probably be sufficient. Make sure the material provides a general introduction to American Indians and familiarizes children with important vocabulary. Some of the terms students

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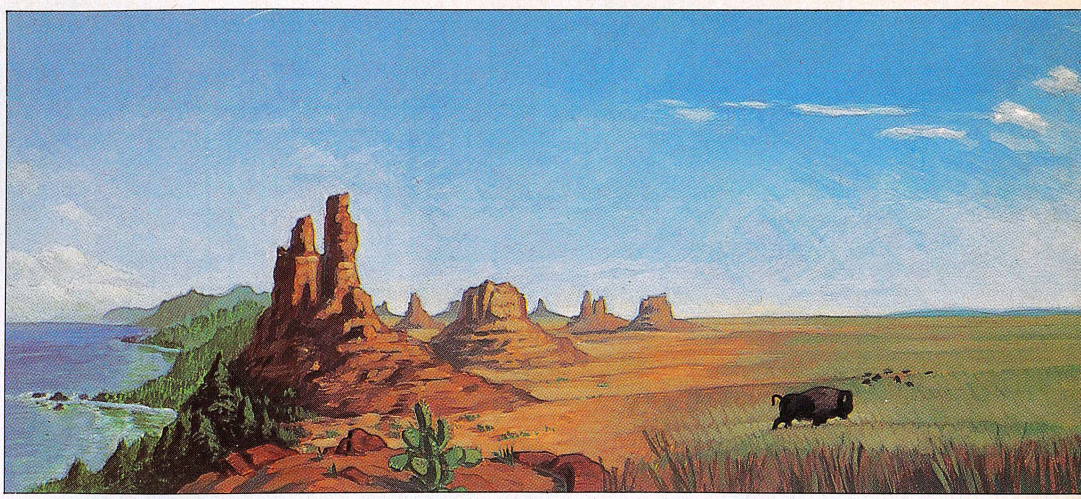
AMERICAN INDIAN DATA FILE



(continued from page 11)

should know include *tribe, linguistic family, pueblo, wigwam, mesa, wickiup, long house,* and *tepee.*

DESIGNING A DATA FILE

The box on this page shows a sample design for a record on an American Indian tribe. The record stores information about a particular tribe at a particular time in history.

In this design, the record takes up three screens. This allows children enough space to enter descriptive and personalized accounts of the information they gather.

Type in the design as it is shown here or modify it to suit your data management program and your particular teaching objectives. For example, if you teach students in primary grades, you may want to limit the design to the information on the first screen only. Or, you may need to abbreviate words if your program has limited space.

AMERICAN INDIAN TRIBES
Tribe:
Linguistic family:
This record describes the people from about year: to:
Area of U.S.:
States:
Type of land:
Sample foods:
Shelter:
Clothing:
Religion:
Population:
Type of work:

FAMOUS LEADER OF THIS TRIBE AND TIME
Indian name:
Other names:
Born: Died:
Known for:
Political/military events of the time:

STUDENT NOTES
This form created by:
Date created:
Date updated:
Source(s):

This record can hold three screens of information on an American Indian tribe. It was created with Scholastic pfs: file.

DISCUSSING TERMS IN THE FILE

Before students begin gathering information for the file, they need to be given a standard format for filling in the fields for each record. (If field data is standardized, it will be easier to compare and contrast records later on.)

Write the names of your fields on the chalkboard. As a class, discuss standard formats to use for recording data in each. Following is how your class could record data for fields in the first screen of the sample record on this page.

Tribe: A tribe is a large band of Indians who live in the same general area. There is some confusion as to whether certain groups of Native Americans are considered a tribe, a village, or a coalition of tribes (also called a federation or a nation). For example, many children's books on American Indians consider all Apache Indians to be from the same tribe; others classify the Apaches as a nation and the smaller groups within the Apaches, such as the Chiricahuas, as tribes. Students must decide how they wish to recognize such groupings. They might decide to use two names in such cases, for example, Chiricahua Apache.

Students will also discover that different references might have different names for the same group of Native Americans. For example, the Ojibwa tribe was known at various times and various places by a number of other names including Chippewa. Help students make a list of names they agree to call the tribes they research.

Linguistic Family: A tribe's linguistic family indicates the origin of its language. For example, the Hopis belong to the Uto-Aztecan linguistic family; Chiricahua Apaches belong to the Athapascan linguistic family. Students should fill in this field accordingly.

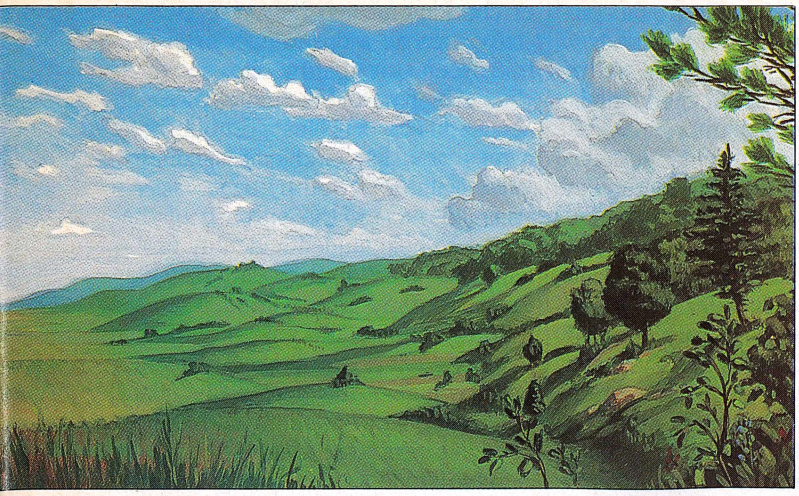
This Record Describes the People from About Year: to: : Explain to students that each form in a file will concern a particular tribe at a particular time in history. The time span could be a one-year span, a 20-year span, or even a 100-year span.

Area of U.S.: Supply children with a list of labels for the geographic regions. One breakdown might be: *Northeast, Northwest, Southeast, Southwest, Central States, Plains,* and *California.* (Many sources list California separately because so many tribes settled there.)

States: Insert two-letter abbreviations for all states in which the tribe settled. For example, on a record for the Navaho tribe from 1961 to 1980,

(continued)

Joel F. Naprstek



AMERICAN INDIAN TRIBES

Tribe: Hopi
Linguistic family: Uto-Aztecan
This record desribes the people
from about year: 1890 to: present
Area of U.S.: Southwest
States: AZ
Type of land: Desert plateau
Sample foods: Sheep, chicken
Shelter: Pueblos (villages built on high mesa tops)
in the Painted Desert
Clothing:
Religion: Snake ceremony is a famous tradition
Population: 2,200
Type of work: Sheep-herding, pottery-making

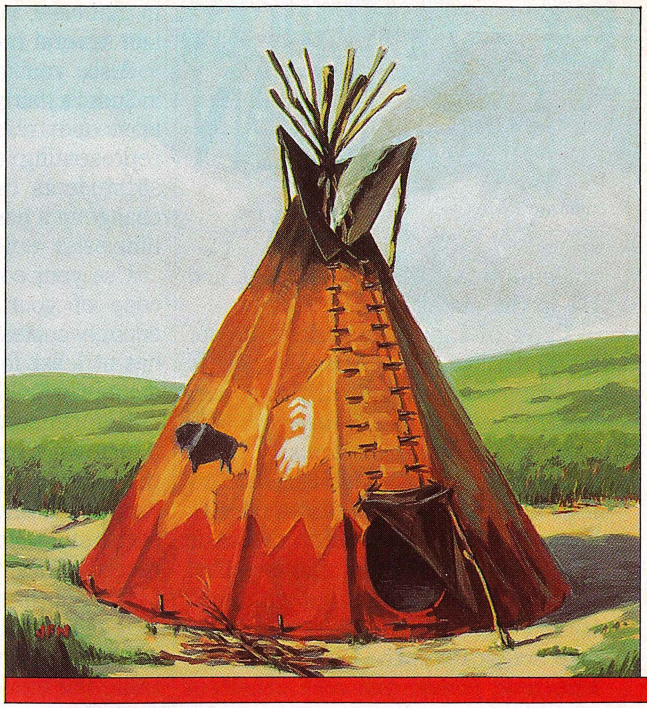
FAMOUS LEADER OF THIS TRIBE AND TIME

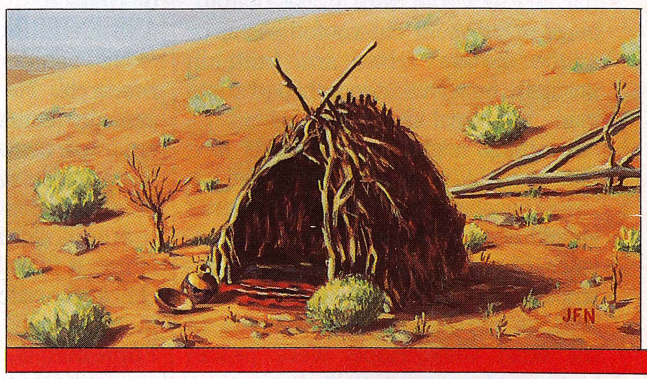
Indian name: Nampeyo
Other names:
Born: 1860 Died: 1942
Known for: Making traditional Hopi pottery. She started a pottery-making industry for the Hopi tribe.
Political/military events of the time: First government school built for Hopis in 1887 in Keams Canyon. In 1891, U.S. Army used machine guns to force Hopis to accept surveying of their land by U.S. officials. Five chiefs were sent to Alcatraz federal prison. Many Navaho raids made on Hopi livestock.

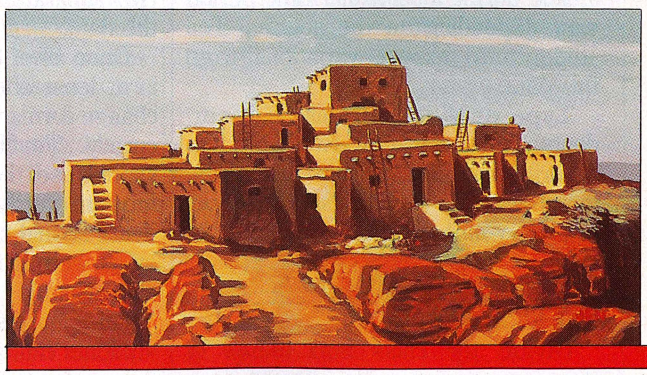
STUDENT NOTES:

This form created by: B. Hunter
Date created: 06/15/85
Date updated:
Source(s): Pages from Hopi History, by Harry C. James. University of Arizona Press, 1974.

A sample record on the Hopi tribe.







The American Indian shelters pictured above are (from top to bottom): a Sioux buffalo-hide tepee, a Paiute brush wickiup, and a Pueblo adobe village.

AMERICAN INDIAN DATA FILE

(continued from page 13)

students would list NM, AZ, CO, and UT in the states field.

Type of Land: As a class, create a standardized list of land types to use for classification, such as *forest, desert, desert plateau, eastern woodland, plains,* and *mountains.*

Sample Foods, Shelter, Clothing, Religion: Students also need to know how to enter data on the basic type of foods, shelter, clothing, and religious beliefs associated with each tribe. Possible foods might be labeled with one or two words like *deer, antelope, wild plants,* and *corn.* Shelters might be categorized as either *wickiups* (houses made of sticks and brush that are covered with grass thatch), *pueblos* (adjacent flat-roofed stone or adobe houses that are built in groups), or *tepees* (cone-shaped tents made of animal skins).

Clothing might be labeled as *animal skins, furs,* or *feathers.*

In the space for religion, students should describe rituals and characteristics of each tribe's beliefs. For example, the Chiricahua Apaches were warlike and fearful of the ghosts of the dead while Hopis were peace-loving and reverent of land.

Population: Population figures of a tribe during a particular time period vary depending on the source. Tell students to expect variations from this data.

Type of Work: In this field, students can use one or two words to describe the kind of labor most tribe members did, such as *sheep-herding* or *pottery-making.*

PREPARING STUDENTS FOR RESEARCH

Divide the class into teams of three or four students. Assign each team one tribe or geographic area to research.

Or, have the entire class work on one geographic area at a time; teams of three or four students might specialize in different historical periods. In that case, your data file would contain several records for each tribe.

Also, you might want your file to include a fairly in-depth study of at least one tribe (10 or more records representing different time periods) so students can study the nature of change in a particular culture through time.

Use your computer to print a blank copy of your record design. Make enough copies so that each student has at least four forms for gathering data.

Before sending students off on their own to gather data, work with them as a group to fill in one sample form that uses information from their social studies textbook. (See sample record on the Hopis, page 13.)

Explain that students don't have to fill in all of the fields on every form, but they should always include the tribe, the time period, and the source (including page numbers).

GATHERING AND ENTERING DATA

Now students are ready to begin research. No single reference will provide comprehensive information on a particular tribe. Students will have to use several different sources of information such as encyclopedias, textbooks, children's books, and films. It will be easier for them to check the accuracy of their work if they use only one source per record. For example, if two different books provide information about the Hopi Indians in 1890, children should use two separate paper forms to record the data.

Once all of the students have filled in at least one form, have them exchange forms and check them for accuracy. To check a form, students should use the source listed on the form to verify the information. Students should check for factual accuracy as well as for correct spelling and abbreviating.

Once forms have been checked, students can take turns entering their data into the computer. (In some cases, students will need to enter several records for a particular tribe, each one containing information gathered from different sources.) For this task, it's best for students to work in partners with one typing and the other checking for accuracy.

As soon as a dozen or so records have been stored in the file, students should begin making printed lists of selected fields, such as a list of tribes' names or a list of the areas of the United States sorted by tribe.

At this stage, the purpose of the lists is to help students identify problems or "holes" in their data file. For example, they may find that some records contain different spellings for the same tribal name. Have students use the update function of their data management program to correct errors and inconsistencies.

Have students continue gathering, checking, entering, and correcting data in the file until they have built a file that contains at least 50 checked records.

```
Chiricahua Apache  1850
Desert
Wickiups made of sticks and
  brush covered with grass
  thatch


Hopi  1540
Desert plateau
Pueblos (cliff dwellings)
  made of masonry


Hopi  1680
Desert plateau
Pueblos moved to top of mesas


Hopi  1890
Desert plateau
Pueblos (villages built on
  high mesa tops) in the
  Painted Desert


Hopi  1968
Desert plateau
Box-like prefabricated houses
  below mesas provided by
  U.S. government


Mohawk  1750
Eastern woodland
Longhouses made of wood
```

This sample data report, printed with Scholastic pfs: file, *compares the type of shelters used by tribes that lived on different types of land. The report is sorted alphabetically by land type.*

USING THE FILE

Your class has now organized a collection of information on American Indians that can be used to answer various geographic and historical questions, such as:

- What are some of the similarities among tribes that lived in similar times?
- How did interactions with Europeans affect the lifestyle of a particular tribe or group of tribes?
- How did the population of a particular tribe change over time?
- In what ways did the physical environment of American Indian tribes affect their lifestyles?

Help students develop the thinking skills they need to use their data to answer these and other questions. Begin by taking a fairly broad question, such as "In what ways did the physical environment of American Indian tribes affect their lifestyles?", and break it down into more specific questions such as "Did tribes that lived on different types of land use different forms of shelter?" and "Did tribes that lived on different types of land wear different kinds of clothes?"

Next, students need to decide which information from the file might help them answer each specific question. For example, to answer the question about shelter, students will need to know the kinds of shelters American Indians used on several types of land.

They can use their data file to print lists of selected information from their records. Most data management programs have a function that allows students to do this. Teach students how to use your data management software to retrieve specific information. For example, with the *Scholastic pfs: file* program, students fill in a "Print Spec" form that tells the computer which fields to print from each record. In this case, students type in codes that instruct the computer to print out only the information in the Tribe, Year, Type of land, and Shelter fields from each record of the data file.

Students also use the "Print Spec" form to tell the computer which data item to use to sort the records before printing the list. In this case, students would instruct the computer to sort the records alphabetically by land type so that all the tribes that lived in the desert would appear together on the report, then all the tribes that lived in the desert plateau, and so on. This grouping makes it easy for children to compare the shelters from one land type with shelters from another land type.

The printed reports often raise additional questions. For example, in the report on shelters, why did one desert-dwelling tribe have wickiup shelters made of sticks and brush, while another had pueblos made of masonry? The report doesn't determine if the physical environment influenced these two kinds of shelter or if other factors were involved.

From the reports, students might hypothesize that other factors besides type of land would enter into the choice of shelter, such as whether the tribe was nomadic or settled in villages, or whether the choice of shelter was influenced by the European culture at a given point in time.

What generalities *can* children make from the report? In this case, they can conclude that in the past, the materials used to build the shelters were readily available from the land (sticks and brush from the desert, masonry from the desert sand and rock, and wood from the forest). But by 1968, the availability of local materials wasn't an important consideration in determining the type of shelter to build.

Students should write up their findings and report them to the class.

If time permits, students should continue updating the file throughout the year. Save the file for next year's students and have them build on this year's work. As more classes work on the file, it will become richer and more refined. In some schools, classes donate their files to the school library or media center so other teachers and students can use and update them. ■

Beverly Hunter is the developer of a series of data management instructional packages for social studies, science, and language arts called *Scholastic pfs: Curriculum Data Bases*. She is also the author of *My Students Use Computers* (Reston, 1983) and other books on instructional computing.

DATA BASE PRIMER
For Beginners Only

A data base management program is like an electronic filing cabinet or a computerized index-card box. It is a piece of software that lets you organize, store, and retrieve information.

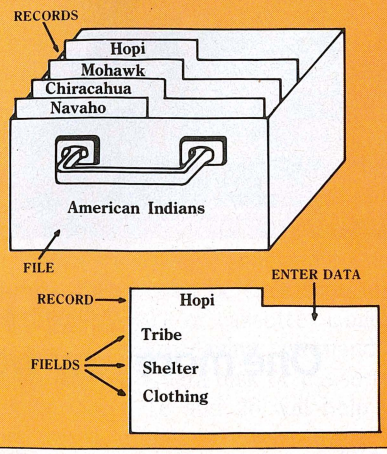
All data management programs contain three important elements: fields, records, and files.

1. Field: A field is a category or item of information. For example, in the American Indian data file in this feature, Tribe, Shelter, and Clothing are fields.

2. Record: A record is a collection or listing of related fields. In the American Indian data file, the Tribe, Shelter, and Clothing of the Hopi tribe would be in one record. The Tribe, Shelter, and Clothing of the Mohawk tribe might make up another record.

3. File: A file is a collection of related records. The Hopi record, the Mohawk record, and other American Indian tribe records would make up a file.

PARTS OF A DATA BASE



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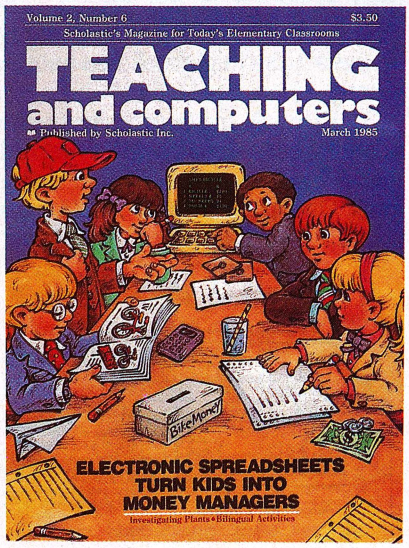

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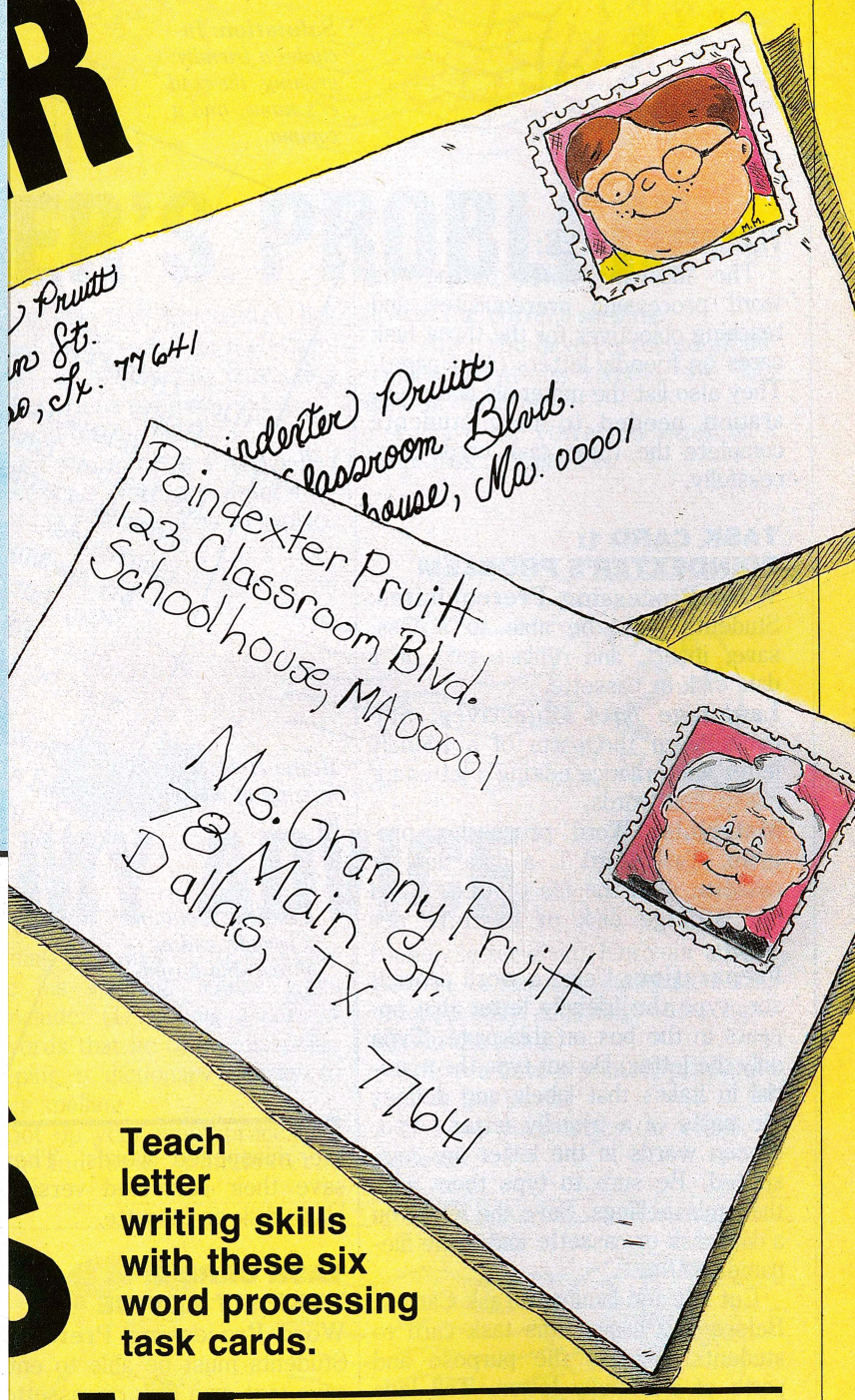

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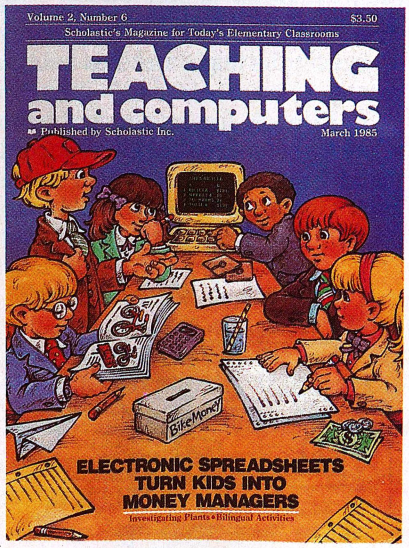

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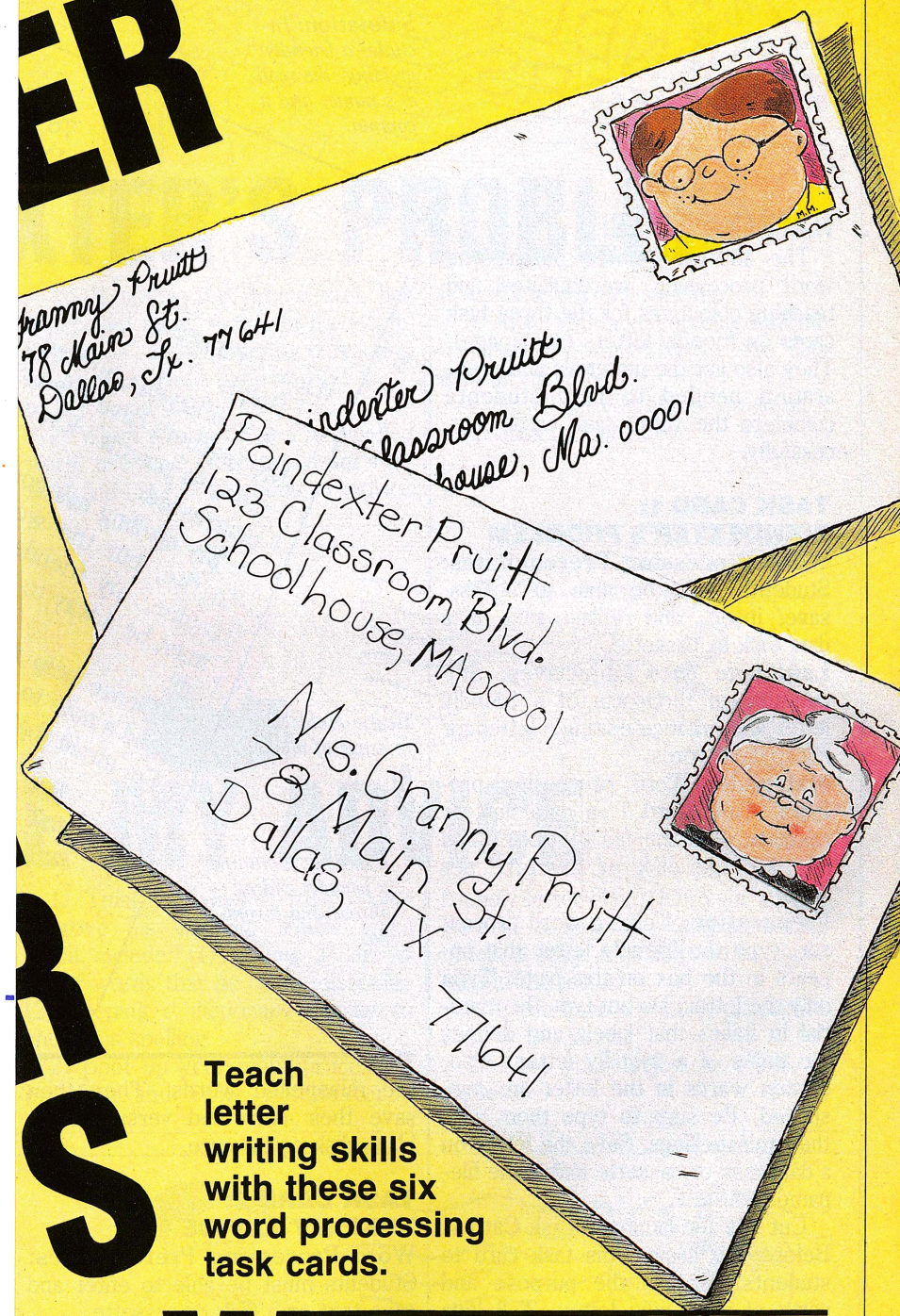

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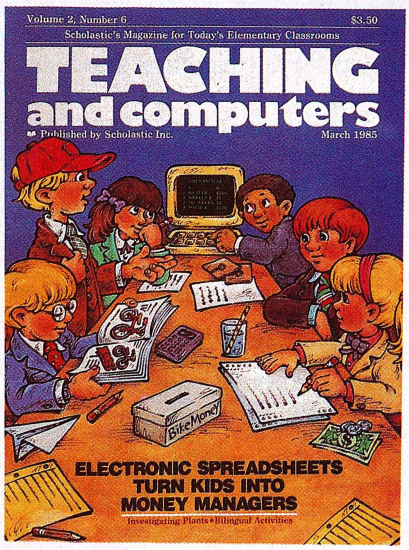

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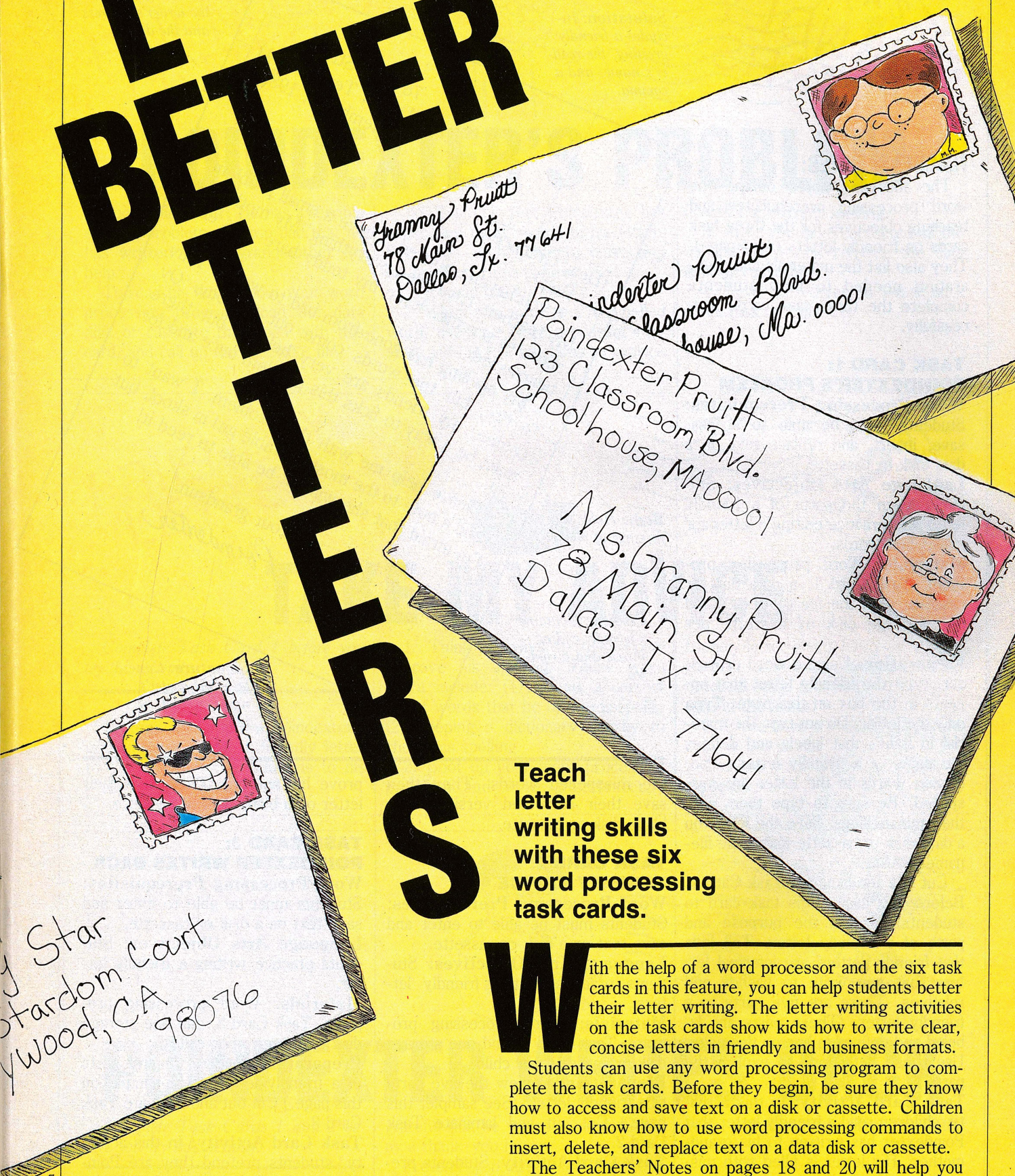

Michael Mason

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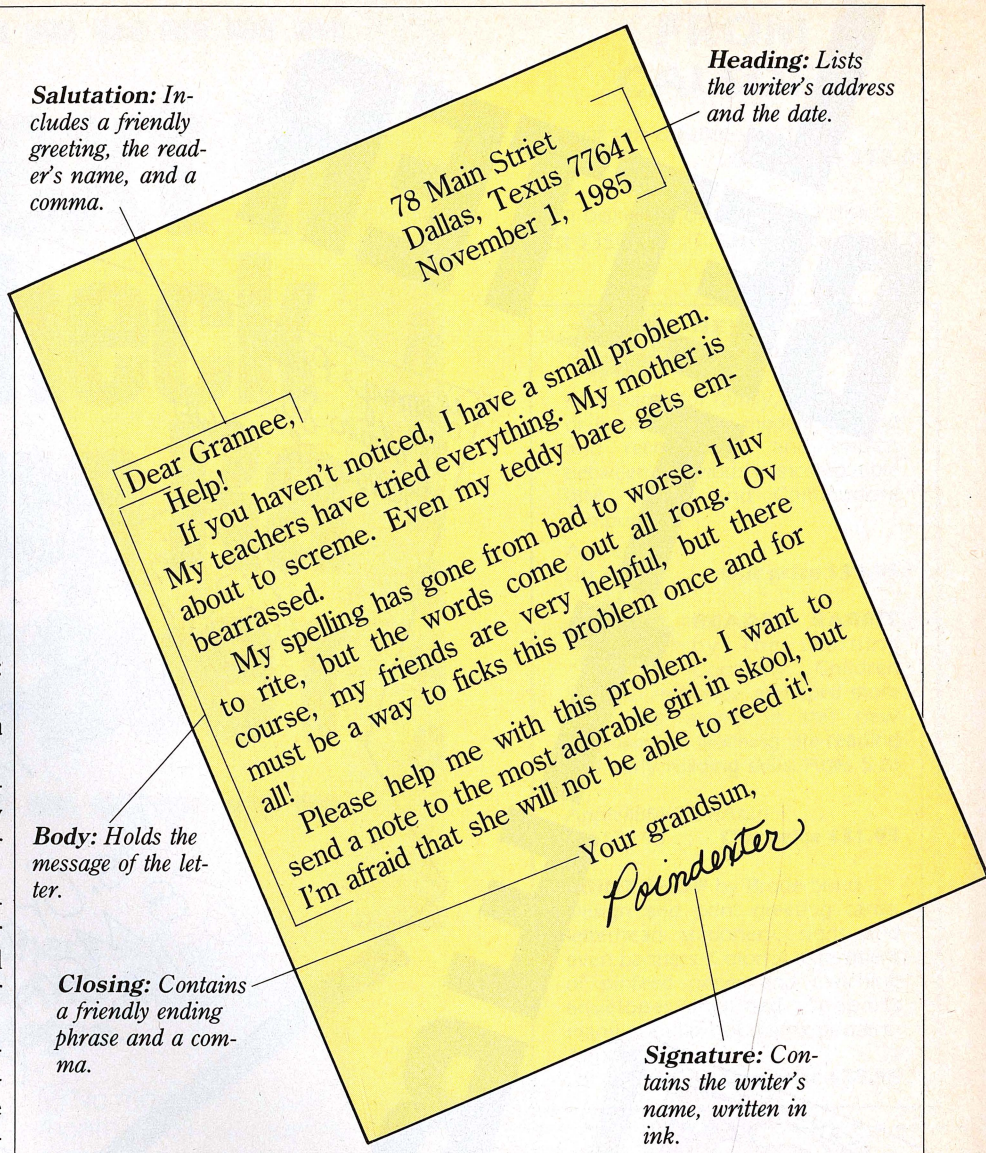
(continued)

Thomas E. Boudrot

FRIENDLY LETTERS



TEACHERS' NOTES:

The following notes outline the word processing prerequisites and teaching objectives for the three task cards on friendly letters (next page). They also list the materials and preparation needed to help students complete the three task cards successfully.

TASK CARD 1: POINDEXTER'S PROBLEM

Word Processing Prerequisites: Students must be able to access, save, insert, and replace text on a data disk or cassette.

Language Arts Objectives: Students learn the parts of a friendly letter and practice editing a letter for misspelled words.

Materials: Word processing program, Task Card 1, a data disk or cassette with the file GRANNEE, and one storage disk or cassette per child.

Preparation: Using a word processor, type the friendly letter that appears in the box on this page. Type only the letter. Do not type the material in italics that labels and defines the parts of a friendly letter. Also, certain words in the letter are misspelled. Be sure to type them with their misspellings. Save the letter on a data disk or cassette under the filename GRANNEE.

Cut out and laminate Task Card 1. Before you assign this task card to students, discuss the purpose and parts of a friendly letter. Tell kids that friendly letters are informal letters that you write to friends and relatives. There are five parts to a friendly letter. (These parts are labeled and defined in box on this page. Use these definitions to explain the parts.)

Task Card Activity: In this activity, children read a friendly letter that Poindexter has written to his grandmother. His letter is filled with misspellings. Students are asked to use the DELETE and INSERT functions of their word processor to correct all the misspelled words. They then save their corrected version on a blank disk or cassette.

TASK CARD 2: TAKE MY ADVICE

Word Processing Prerequisites: Students must be able to enter and save text on a disk or cassette.

Language Arts Objectives: Students practice writing friendly letters.

Materials: Word processing program, Task Card 2, and one storage disk or cassette per child.

Preparation: Review the five parts of a friendly letter. (See sample, this page.) Cut out and laminate Task Card 2.

Task Card Activity: Students pretend they are Poindexter's granny and write a friendly letter to Poindexter telling him how he can improve his spelling. They save their letter on a blank disk or cassette.

TASK CARD 3: POINDEXTER WRITES BACK

Word Processing Prerequisites: Students must be able to enter and save text on a disk or cassette.

Language Arts Objectives: Students practice writing a friendly letter.

Materials: Word processing program, Task Card 3, and one storage disk or cassette per child.

Preparation: Review the five parts of a friendly letter. (See sample on this page.) Cut out and laminate Task Card 3.

Task Card Activity: In this activity, students pretend they are Poindexter. As Poindexter, they write Granny a friendly letter thanking her for helping him improve his spelling.

FRIENDLY LETTER

TASK CARD 1

POINDEXTER'S PROBLEM

Poor Poindexter! He has a terrible spelling problem. It is so bad that he has written to his grandmother for help.

To read his letter, boot your word processing program, load the data disk or cassette that goes with this card, and call up the GRANNEE file.

You'll notice that Poindexter has misspelled many words in his letter. See if you can help him by correcting his spelling. Here is how.

1. Reread the letter.
2. When you come to a misspelled word, use your word processor's INSERT and DELETE functions to replace it with the correct spelling.
3. After you have corrected all the misspelled words, remove the data disk or cassette.
4. Save the corrected letter on a blank disk or cassette.

FRIENDLY LETTER

TASK CARD 2

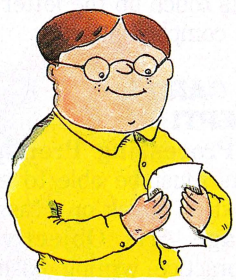
TAKE MY ADVICE

Complete Task Card 1 before you try this activity.

Pretend that you are Poindexter's grandmother. Write a friendly letter to Poiny with some solutions to his problem. Here is how.

1. Think of ways to help Poiny improve his spelling. These ways might include: (1) making a correct list of words that he often misspells, (2) keeping a dictionary nearby to check his spelling.
2. Boot up your word processing program and write Poindexter a friendly letter giving him your advice. Be sure to include a heading, a salutation, a body, a closing, and a signature in the letter.
3. If you have a printer, print out a copy of the letter.
4. Save your letter on a disk or cassette.

FRIENDLY LETTER



TASK CARD 3

POINDEXTER WRITES BACK

Complete Task Cards 1 and 2 before you try this activity.

Poindexter took Granny's advice on how to improve his spelling, and it was a big help. In fact, Poiny is so grateful that he wants to write Granny a thank-you letter.

Pretend you are Poindexter and use your word processing program to write a thank-you letter. Be sure to include a heading, a salutation, a body, a closing, and a signature in the letter.

If you have a printer, make a printout of the letter. Save the letter on a blank disk or cassette.

BUSINESS LETTERS

TEACHERS' NOTES

The following notes outline the word processing prerequisites and teaching objectives for the three task cards on business letters (next page). They also list the materials and preparation needed to help students complete the three task cards successfully.

TASK CARD 4: TOUCH IT UP

Word Processing Prerequisites: Students must be able to access, save, delete, insert, and replace text on a data disk or cassette.

Language Arts Objectives: Students learn the parts of a business letter and practice editing a sample letter.

Materials: Word processing program, a data disk or cassette with the file called BARNEY, Task Card 4, and one storage disk or cassette per child.

Preparation: Using your word processing program, type the business letter that appears in the box on this page. Type only the letter. Do not type the material in italics that labels and defines the parts of a business letter. Change the inside address in the letter to your school address. Save the letter under the name BARNEY.

Cut out and laminate Task Card 4. Before you assign this task card to students, discuss the purpose and parts of a business letter. Explain that a business letter is used for formal communication, such as ordering goods or applying for jobs. Tell kids there are six parts to a business letter. (These six parts are labeled and defined in the box on this page. Use these definitions to explain the parts.)

Task Card Activity: Students read a business letter that has been sent to them from Barney Star, a famous movie idol. In the letter, Barney offers them a job as his assistant. Parts of the letter are not very complimentary to a teacher named Ms. Strict. Students touch up the letter to make it more complimentary.

Heading: *Lists the writer's address and the date.*

Inside Address: *Lists the address to whom the letter is written.*

Salutation: *Includes a formal greeting, the reader's name, and a comma.*

Body: *Holds the message of the letter.*

Closing: *Contains a formal ending phrase and a comma.*

Signature: *Includes the writer's signature, written in ink. The writer's name and title is typed under the signature.*

1432 Stardom Court
Hollywood, CA 98076
November 12, 1985

Lucky Applicant
123 Classroom Boulevard
Schoolhouse, MA 00001

Dear Lucky Applicant,

I am pleased to inform you that I have selected you to be my assistant. You will be responsible for packing my clothes, making my travel arrangements, writing my letters, and doing other jobs that I am too lazy to perform. Isn't that thrilling?

Please write a letter if you plan to accept. I would like to have you iron my shirts as soon as possible.

I was surprised to note that you are in Ms. Strict's class. I was in her class many years ago. She must be as old as the hills by now! Is she still ringing that silly bell to get the class's attention?

If you have any questions regarding the position, please contact me. I look forward to hearing from you.

Sincerely,

Barney Star

Barney Star
Idol of Millions

TASK CARD 5: I ACCEPT!

Word Processing Prerequisites: Students must be able to enter and save text on a disk or a cassette.

Language Arts Objectives: Students practice writing business letters.

Materials: Word processing program, Task Card 5, and one storage disk or cassette per child.

Preparation: Review the six parts of a business letter. (See sample on this page.) Cut out and laminate Task Card 5.

Task Card Activity: Students write Barney a business letter in which they accept his job offer.

TASK CARD 6: I QUIT!

Word Processing Prerequisites: Students must be able to enter and save text on a data disk or cassette.

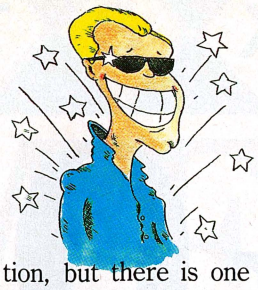
Language Arts Objectives: Students practice writing business letters.

Materials: Word processing program, Task Card 6, and one storage disk or cassette per child.

Preparation: Review the six parts of a business letter. (See sample on this page.) Cut out and laminate Task Card 6.

Task Card Activity: Students write Ms. Strict a business letter to inform her that they are accepting Barney's job offer and resigning from school.

BUSINESS LETTER



TASK CARD 4

TOUCH IT UP

From thousands of job applicants, Barney Star, a famous movie idol, has selected you.

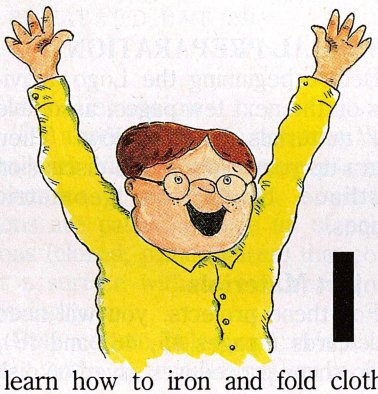
Barney has written you a business letter to tell you. To read the letter, boot up your word processing program, load the data disk or cassette that goes with this card, and call up the BARNEY file.

You would love to accept the position, but there is one problem. Ms. Strict, your teacher, is not going to like the idea of your leaving school. If the letter said nicer things about Ms. Strict, you could show it to her to convince her that working for Barney is a great idea.

Reread the letter and decide which phrases could be changed to make the letter nicer. Use your word processor to rewrite those parts of the letter. Here is how.

1. Use the DELETE and INSERT functions on your word processor to change words and phrases.
2. If you have a printer, make a printout of the letter.
3. Remove the data disk or cassette and save the new version of the letter on a disk or cassette.

BUSINESS LETTER



TASK CARD 5

I ACCEPT!

Complete Task Card 4 before you try this card.

You are thrilled that you have been selected as Barney's assistant. Boot up your word processing program and write a business letter to inform Barney that you accept the position.

Tell him about why you think you are perfect for the job. (You better learn how to iron and fold clothes, pronto!)

To make the letter official, be sure to include a heading, an inside address, a salutation, a body, a closing, and a signature in the letter. Use your school address in the heading. You will find the inside address you need in the letter that Barney sent to you.

If you have a printer, make a printout of your letter. Save the letter on a disk or cassette.

BUSINESS LETTER

TASK CARD 6

I QUIT!

Complete task cards 4 and 5 before you try this activity.

Now that you have told Barney that you accept the job, you must tell Ms. Strict that you will not be able to finish the school year. Boot up your word processing program and write a business letter to let Ms. Strict know that you are resigning from her class.

In the letter tell her about the wonderful experiences you will have. Ask her for your homework assignments and let her know that you plan to keep up with your lessons. Tell her that you would like to return to her class next year.

Don't forget to include the heading, the inside address, the salutation, the body, the closing, and the signature in the letter. Use your school address in the heading and as the inside address.

If you have a printer, print out a copy of the letter. Save the letter on a disk or cassette.

DECK THE LOGO OR

Combine lessons in art and geometry to make three holiday hang-ups.

Decorating the halls with handmade ornaments is an important part of almost every preholiday classroom. With the help of Logo, you can turn this holiday art activity into a lesson in geometry, too!

Art and geometry have gone hand in hand for thousands of years. For example, the ancient Greeks applied their knowledge of geometry to create sculptures and buildings with ideal proportions. In the Middle Ages, the Moors used polygonal tiles (triangles, squares, and so on) to create beautiful mosaics in the Alhambra palace in Granada, Spain. The twentieth century architect R. Buckminster Fuller designed innovative buildings in the shape of geometric solids.

This relationship between art and geometry can be explored in the classroom by using the turtle graphics capabilities of the Logo programming language.

By following the directions on the three task cards in this feature, your students can use Logo to draw geometric patterns on the computer screen. If you have printing capabilities for your Logo software, children can then make printouts of their geometric patterns, and color and fold them into three holiday ornaments: a four-pointed star, a rosette, and a wreath.

Bob Shein

The geometry activities on the task cards are suitable for almost all popular versions of Logo.

GENERAL PREPARATION

Before beginning the Logo activities on the next few pages, assemble the materials listed below. Then warm-up your class with a discussion (outlined below) on geometric shapes.

Project Materials

For these projects, you will need task cards (pages 45, 46, and 48), Logo shape procedures saved on disk or cassette, and art materials.

1. *Task Cards.* Cut out and laminate the three task cards on pages 45, 46, and 48.

2. *Art Materials.* To make the ornaments, students will need a pair of scissors, transparent tape, colorful string, water soluble markers, and a hole punch.

3. *Logo Utility File.* The following Logo SHAPES file contains variable procedures to create a square, right

HALLS WITH NAMENTS

BY EVELYN DALE

triangle, rectangle, and equilateral triangle. Boot Logo into your computer and type in each procedure exactly as it appears. (The procedures will work for almost any version of Logo.) Save the procedures under the filename SHAPES.

```
TO SQUARE :D
  REPEAT 4 [FD :D RT 90]
END
TO RT.TRI :D
  FD :D RT 90 FD :D RT 135
  FD SQRT :D * :D + :D * :D
END
TO RECTANGLE :D
  REPEAT 2 [FD :D RT 90 FD :D * 2 RT 90]
END
TO EQ.TRI :D
  REPEAT 3 [FD :D RT 120]
END
```

Class Discussion

The three geometric patterns that students will fold into ornaments are examples of tessellations. Tessellations are patterns made up of polygons (closed, plane figures) that cover a surface without overlapping or leaving gaps.

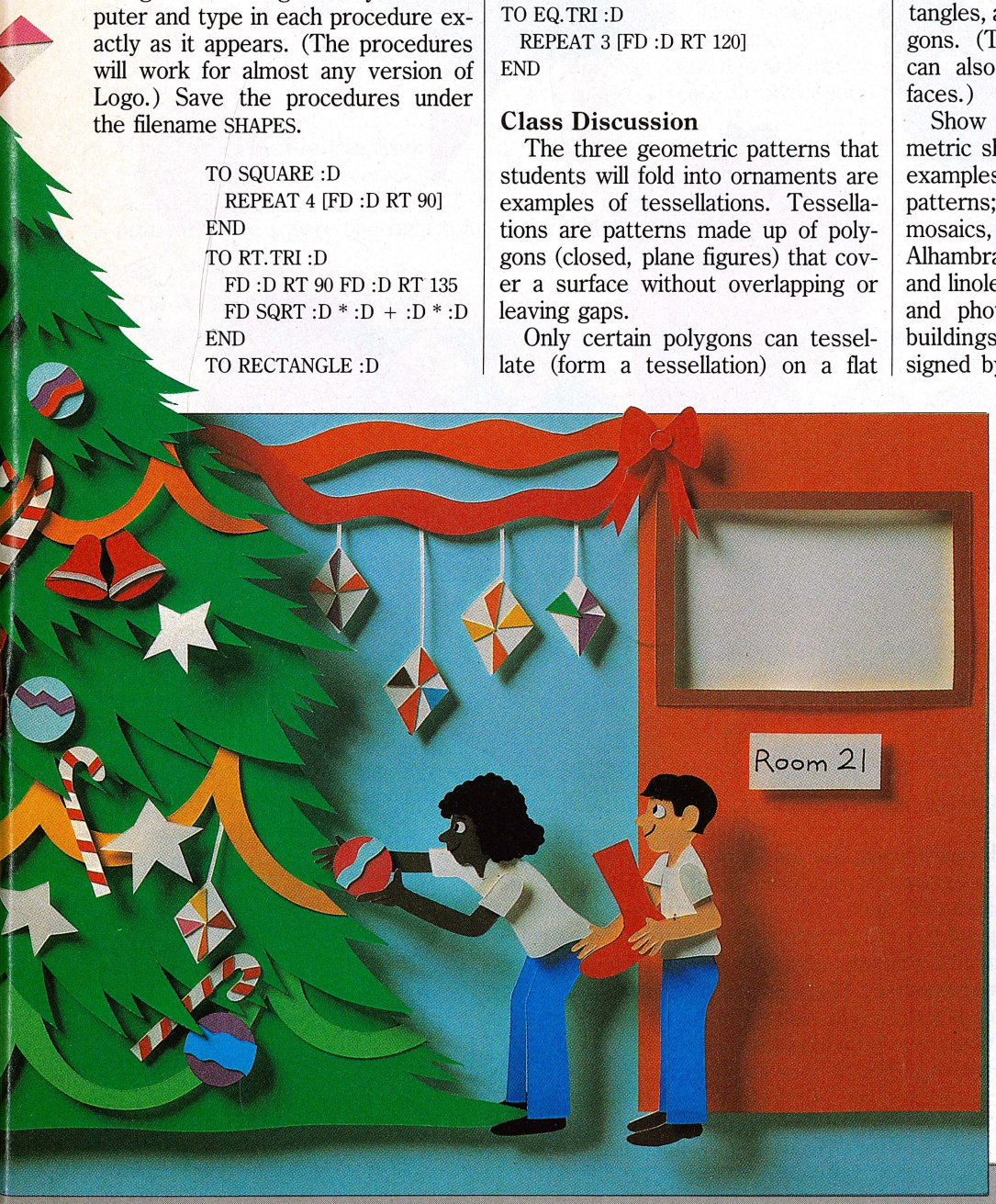
Only certain polygons can tessellate (form a tessellation) on a flat surface. These polygons are: triangles, parallelograms (squares, rectangles, and rhombuses), and hexagons. (Triangles and parallelograms can also tessellate on curved surfaces.)

Show students examples of geometric shapes that tessellate. These examples might include quilts or quilt patterns; illustrations or photos of mosaics, including the mosaics of the Alhambra palace; certain wallpaper and linoleum samples; a turtle's shell; and photos of geodesic domes or buildings, including structures designed by R. Buckminster Fuller. (A geodesic dome is formed by shapes, such as pentagons, that tessellate over a curved surface.)

Show students how each of these items is made up of figures enclosed by straight edges, such as triangles, rectangles, and squares. Also show how these polygons fit together perfectly, without overlapping and without leaving spaces in between. Tell children that designs made of polygons that fit together perfectly are called *tessellations*.

Explain that these flat tessellations can be made only of triangles, parallelograms, and hexagons. Tell kids that they will be using Logo to make flat tessellations on the screen. They will then turn these flat tessellations into three-dimensional ornaments.

(continued on page 45)



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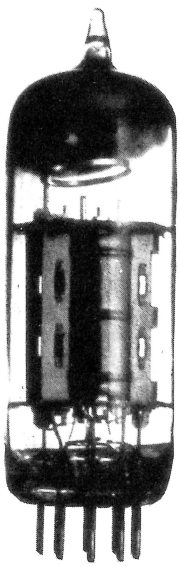
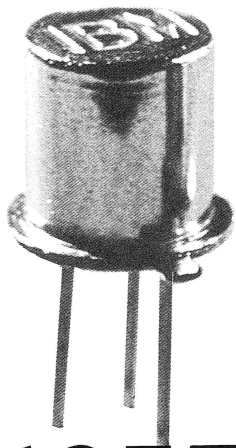
NAME THE COMPUTER PARTS

Look at the pictures below.
Each picture shows a computer part and the date it was first made.
Write the name of each part on its line.
Use the Word Box to help you.



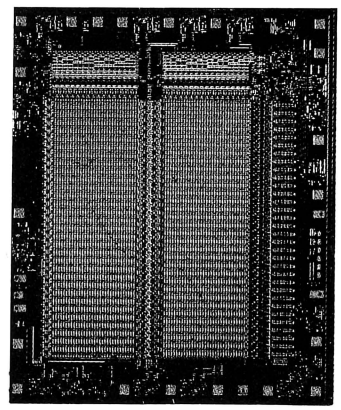
1946

_____



1957

_____



1965

_____

WORD BOX
chip
transistor
tube

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PRIMARY

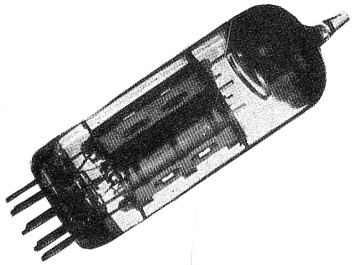
WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

NAME: _____

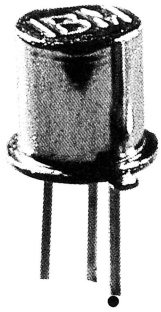
COMPUTER MATCH

Draw a line from each computer part on the left to its machine on the right. Color the pictures.

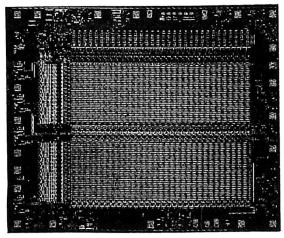
PART:



tube



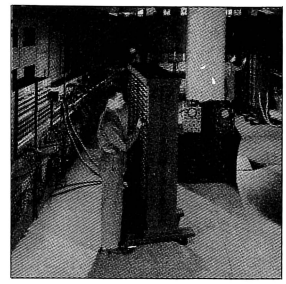
transistor



chip

MACHINE:

microcomputer



ENIAC

minicomputer

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INTERMEDIATE

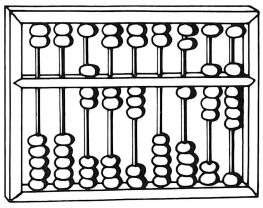
WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

NAME: _____

EARLY COMPUTER HISTORY

Each box below contains a picture of an early computing machine.
Use the encyclopedia or other books to
find information about each machine.
The first one is done for you.

ABACUS

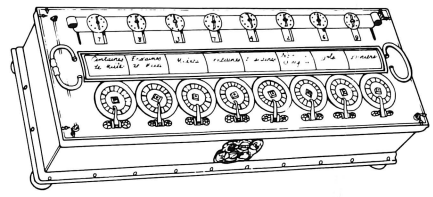


Date: AROUND 2600 BC.

Inventors: CHINESE AND EGYPTIANS

How it worked: BEADS WERE MOVED UP AND DOWN RODS TO ADD AND SUBTRACT.

LA PASCALINE

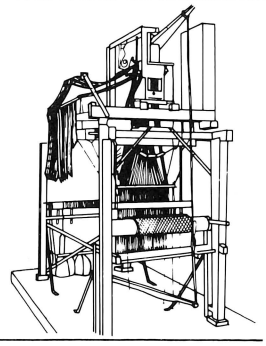


Date: _____

Inventor: _____

How it worked: _____

JACQUARD'S LOOM

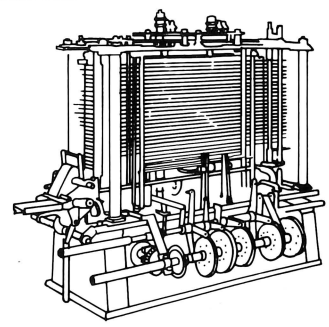


Date: _____

Inventor: _____

How it worked: _____

ANALYTICAL ENGINE



Date: _____

Inventor: _____

How it worked: _____

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INTERMEDIATE

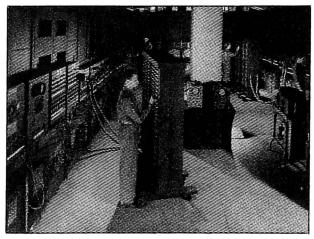
WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

NAME: _____

HISTORY OF ELECTRONIC COMPUTERS

For the last 40 years, computers have run on electricity. Below are pictures of four electronic computers. Use reference books to fill in information about each one. The first one is done for you.

ENIAC



Date: 1946

Inventors: JOHN MAUCHLY & JOHN ECKERT

Important Features: GOT ITS POWER FROM 18,000 VACUUM TUBES. COULD DO 5,000 ADDITIONS PER SECOND.

UNIVAC

Date: _____

Inventors: _____

Important Features: _____

CDC 1604 MINICOMPUTER

Date: _____

Inventor: _____

Important Features: _____

APPLE II MICROCOMPUTER

Date: _____

Inventor: _____

Important Features: _____

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We couldn't wait for you to try our complete classroom kit. So we put part of it on the back of this poster.

For $19.95 you get the software that goes with it.

This poster is just one sample from a complete classroom kit. You get one every time you purchase one of the 20 programs from the Learning Technologies library.

In each kit you'll find (1) one full color poster (as colorful as this one) to display in your class; (2) a custom lesson plan that outlines the best way for your students to interact with the software; (3) three reproducible worksheets featuring activities that extend the skill areas of the software; (4) a reproducible student management chart to record individual progress and (5) a reproducible reward certificate for students who complete the activities.

Each software progam is much more than drill and practice. It's an exercise in a specific learning skill using a creative problem solving process. And we believe so strongly in the quality, we offer an unconditional money-back guarantee: try our software and if you're not completely satisfied, return it for a full credit or refund – no questions asked.

We offer this guarantee because we don't think you'll return it. We think you'll love it. And we think you'll agree your students have a lot to learn from it.

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In Texas 1-214-991-4958.

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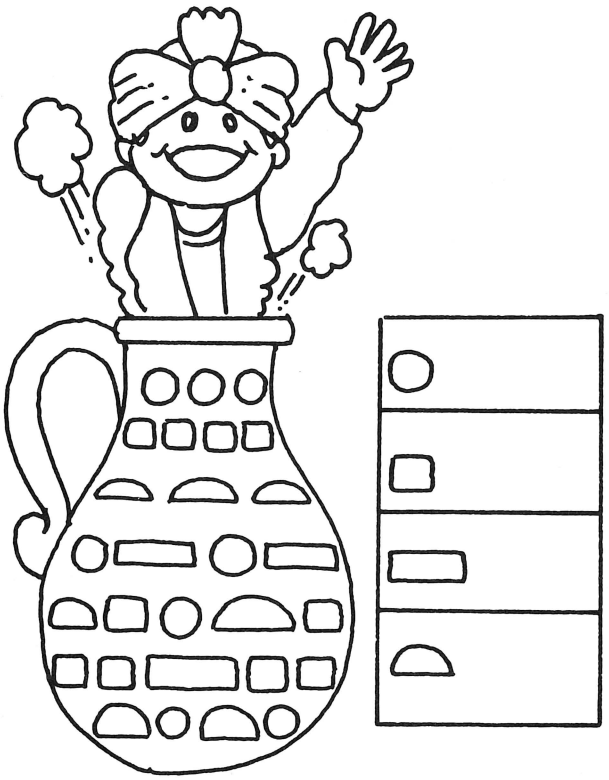
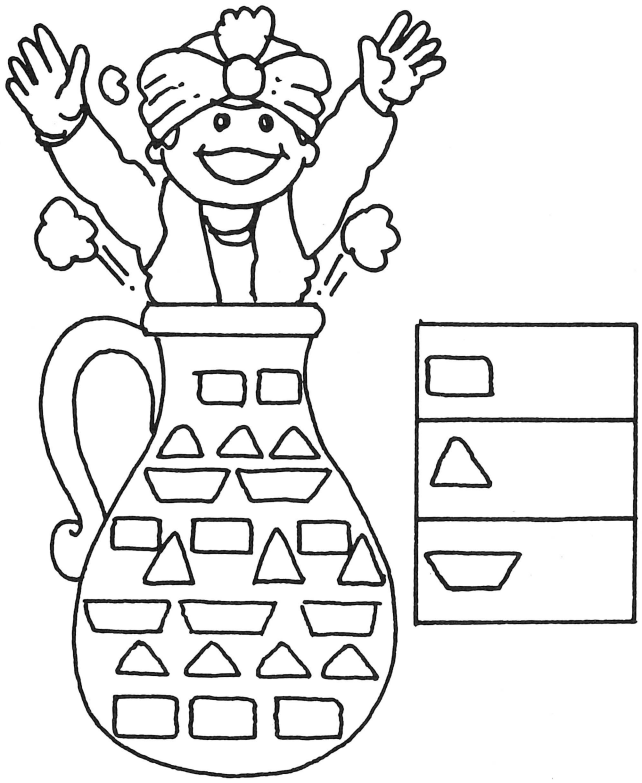
Allakazam

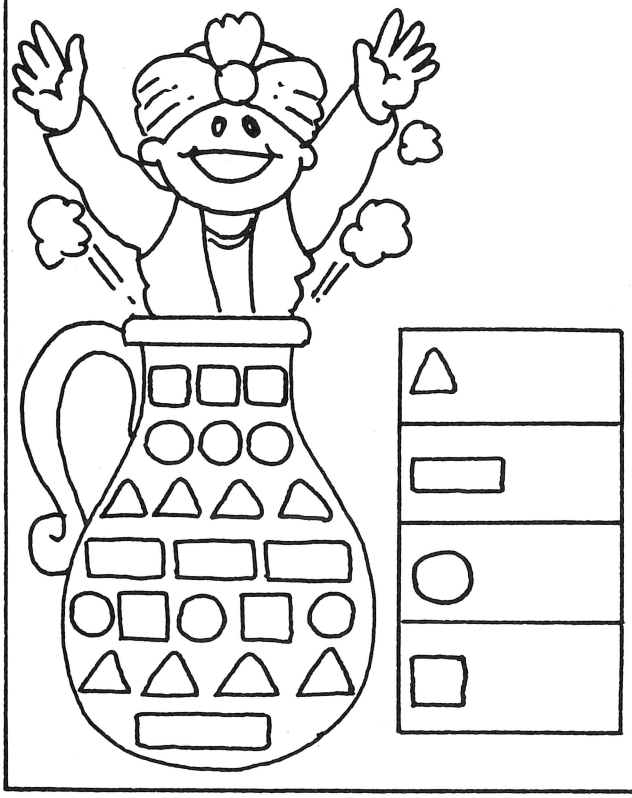
Name:

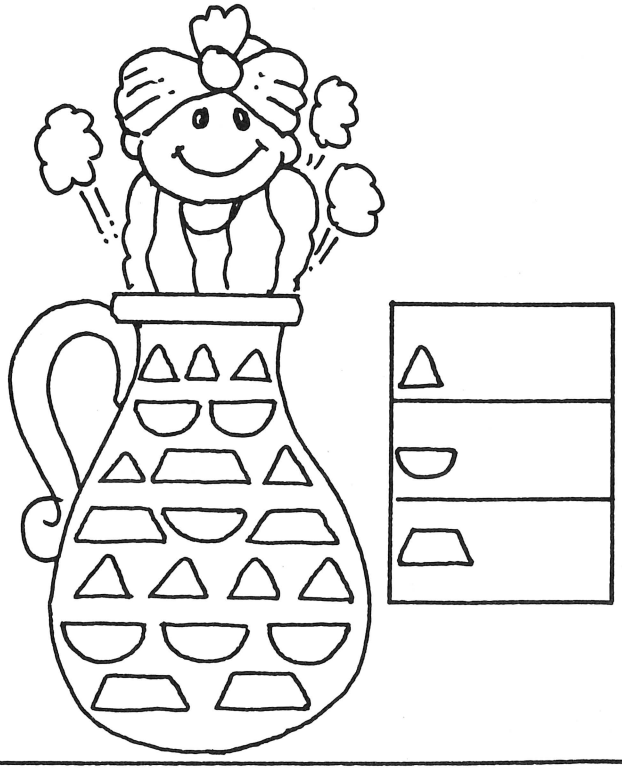
Worksheet #1

Tally the shapes on each genie's urn.









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The City of Yanbu

Name:

Worksheet #2

Color all the ◯ 's red.

Color all the ▭ 's yellow.

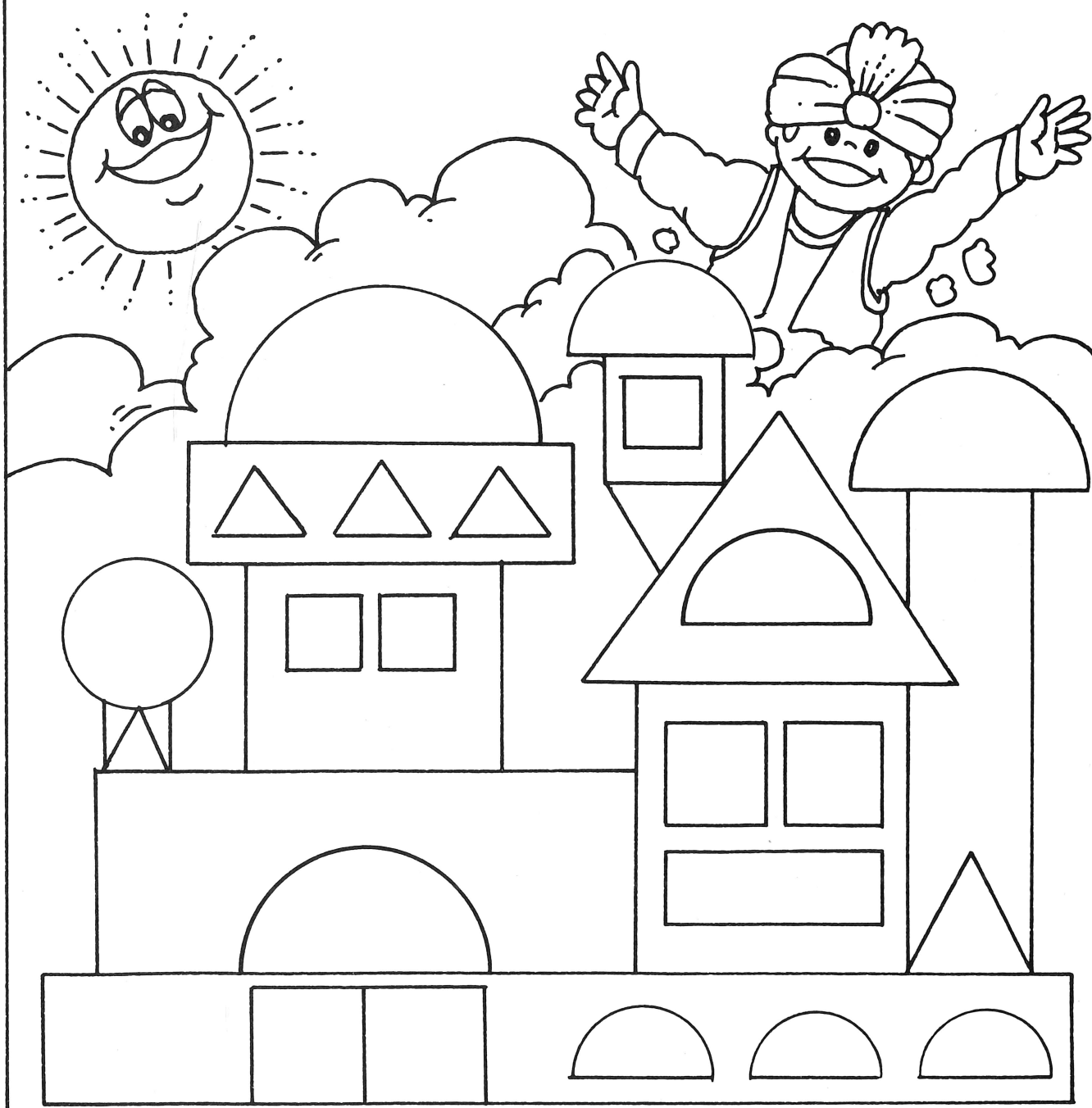
Color all the ⌓ 's blue.

Color the genie however you wish.

Color all the △ 's purple.

Color all the □ 's black.

Color all the ⌓ 's green.



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The City of

By

Worksheet #3

Cut out these shapes. Use them to create your own Arabian city by gluing them above. Name your city. Color it.

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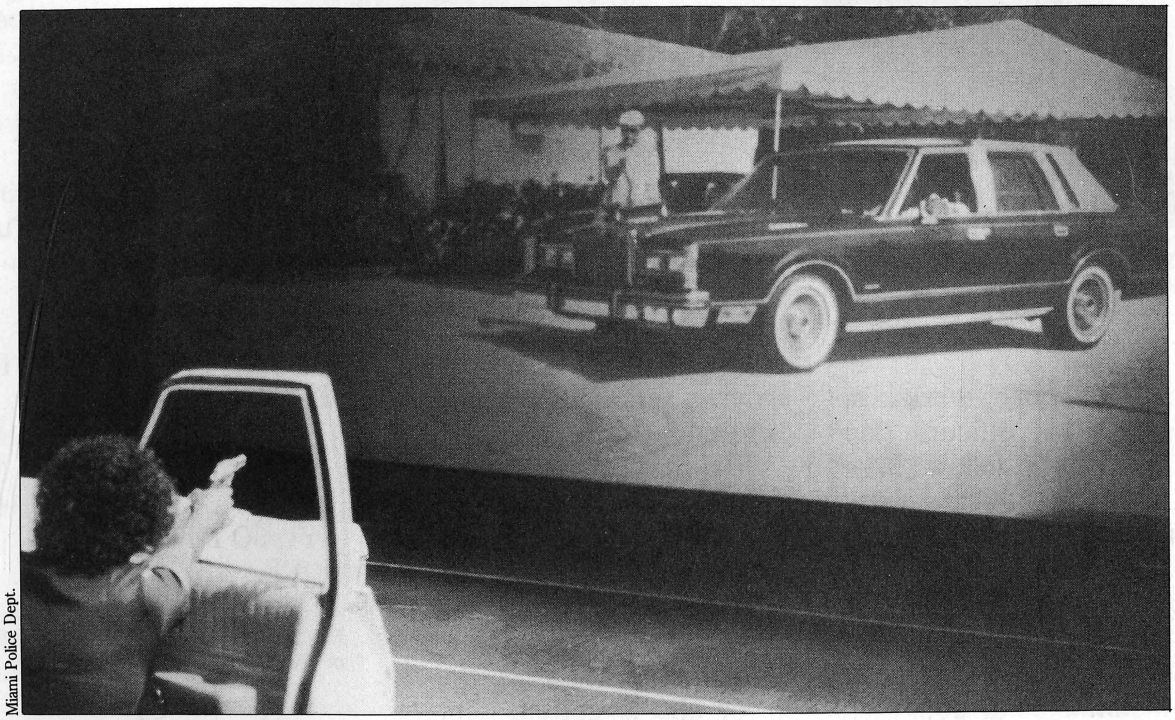
MICRO TIMES™

The mini-magazine for kids who love computers.

Published by Scholastic Inc. November/December 1985

Computers Help Train Police



Miami Police Dept.

A computer simulator shows this film of an armed man getting out of a car. The officer must decide on the spot what to do.

MIAMI, FL—On the TV show *Miami Vice*, Philip Michael Thomas and Don Johnson play two police officers. Their characters often come face to face with dangerous criminals.

Never fear, though. These two always know just what to do. If the show's script says to chase the criminals, they go after them. If the script says to call for help, they call for help.

The *Miami Vice* officers are never in any real danger. All the action is make-believe. And, in the end, they always catch the criminals.

(Continued on next page.)

INDEX

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Thanksgiving Menu Reader.....4

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Written by Lorraine Hopping.

Computers Help Train Police

(Continued from page 1.)

NBC

Officers Tubbs (left) and Crockett of TV's Miami Vice.

In real life, police work is not so easy. Real officers don't have a script to follow. When they come face to face with a criminal, they have to decide what to do on the spot.

To help officers make the right decisions, the real Miami Police Department in Florida uses a *simulator* to train them. The simulator is a machine that is run by a computer. It helps police set up situations that would be "similar" to real life.

Sergeant Vincent Smith of the Miami force explains how they use the simulator:

"A patrol car is put in a large room, facing a wall-size screen. An officer sits in the car. The simulator sends a call reporting a crime over the car radio. Then on the large screen, the simulator displays a film of the police car approaching the scene of the crime. The officer pretends to be in that car. He or she looks over the situation in the film. As things happen, the officer decides what to do."

In one film, the simulator shows an armed man running into an alley. (All the people in the film are actors playing roles.)

"If the officer signals the simulator that he or she is going to 'chase' him," Sgt. Smith explains, "then the simulator's computer switches to a picture of the man waiting in ambush."

"If the officer calls for help on the car radio, which is the best thing to do," he says, "then the simulator switches to a picture of other police cars arriving and surrounding the criminal."

"By making the best decision," Sgt. Smith adds, "the officer catches the criminal and no one gets hurt."

The simulator's computer has ways to tell if the officer is getting nervous. If it looks like he or she is getting nervous, the computer adds another criminal to the scene, or otherwise makes the situation more risky.

"The purpose of that," Sgt. Smith explains, "is to teach officers to keep their cool. If they get too nervous in a real life situation, they can make things worse."

The situations an officer faces in real life will never be exactly like those shown by the simulator. But the simulator does give officers practice in making difficult decisions on the spot when the going gets tough.

Ralph's Star

Ralph Reindeer (Rudolph's cousin) needs a star to put on top of his Christmas tree. He wants to make one using Logo. Ralph's *Star* program has a few bugs in it, though. Can you fix them?

Bonus: Write a Logo program to make a tree. Put the star on top.

```
TO STAR
  GO FORWARD 50 TURN
RIGHT 144
  FORWARD 50 RIGHT 144
  FWD 50 RGT 144
  FORWARD50 RIGHT144
  FD 5O RT 144
DONE
```

Answer: Your teacher has the answer to the Bug Buster. It is on page 62 of his or her copy of *Teaching and Computers* magazine.

Joke File

Q: What's a computer's favorite type of dancing?
A: Disk-o.

Becca Buddin
Rock Hill, SC

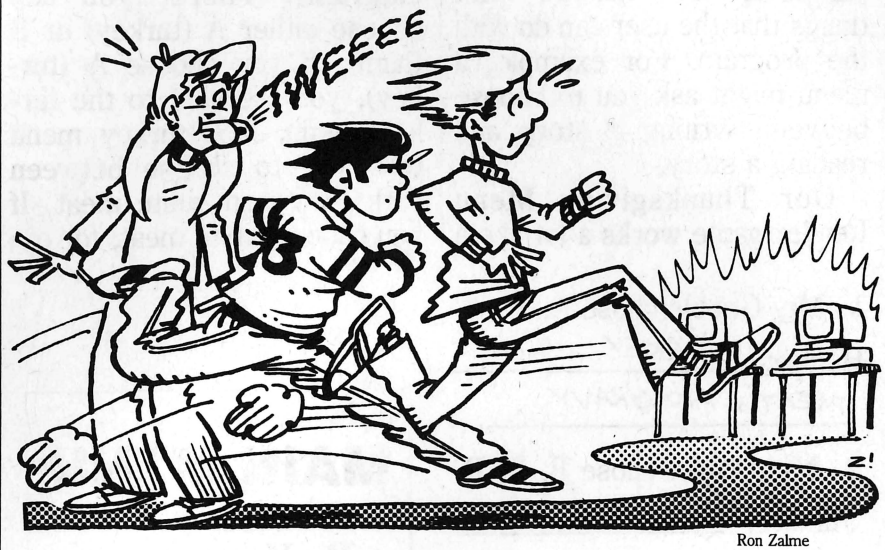
Q: What did the computer get for Christmas?
A: A little boy to play with it.

Derek Gans
Detroit, MI

Program Listing!
Enter the Name Race

Anybody can run a foot race. But did you ever run a *name* race? Our *Name Race* program pits your name against your best buddy's name in a race across the computer screen. Whose name will reach the finish line first? Try our *Name Race* program to find out.

If you don't like the results, try the race again and see if you do better.



Ron Zalme

WHAT TO DO

Put your computer in BASIC. Type NEW and press RETURN or ENTER.

Find the *Name Race* program listing for your brand of computer and type it in.

Type RUN and press RETURN or ENTER. Enter the names of the two racers. The names will race across the screen from left to right. The first name to reach the right hand edge wins.

NAME RACE PROGRAM LISTINGS

Commodore 64

```
10 A=1:B=1:C=0
20 PRINT " ENTER RACER 1'S NAME."
30 INPUT A$
40 PRINT " ENTER RACER 2'S NAME."
50 INPUT B$
60 PRINT CHR$(147)
70 C=INT(2*RND(1))+1
80 IF C=1 THEN A=A+1
90 IF C=2 THEN B=B+1
100 PRINT TAB(A);A$
110 PRINT:PRINT TAB(B);B$
120 IF A=32 THEN PRINT " THE WINNER IS ";A$;"!":END
130 IF B=32 THEN PRINT " THE WINNER IS ";B$;"!":END
140 FOR D=1 TO 100:NEXT D
150 GOTO 60
```

Apple

```
10 A=1:B=1:C=0
20 PRINT "ENTER RACER 1'S NAME."
30 INPUT A$
40 PRINT "ENTER RACER 2'S NAME."
50 INPUT B$
60 HOME
70 C=INT(2*RND(1))+1
80 IF C=1 THEN A=A+1
90 IF C=2 THEN B=B+1
100 PRINT TAB(A);A$
110 PRINT:PRINT TAB(B);B$
120 IF A=32 THEN PRINT " THE WINNER IS ";A$;"!":END
130 IF B=32 THEN PRINT " THE WINNER IS ";B$;"!":END
140 FOR D=1 TO 100:NEXT D
150 GOTO 60
```

TRS-80 Models III/IV Color Computer

```
5 RANDOM
10 A=1:B=1:C=0
20 PRINT " ENTER RACER 1'S NAME."
30 INPUT A$
40 PRINT " ENTER RACER 2'S NAME."
50 INPUT B$
60 CLS
70 C=RND(2)
80 IF C=1 THEN A=A+1
90 IF C=2 THEN B=B+1
100 PRINT TAB(A);A$
110 PRINT:PRINT TAB(B);B$
120 IF A=56 THEN PRINT " THE WINNER IS ";A$;"!":END
130 IF B=56 THEN PRINT " THE WINNER IS ";B$;"!":END
140 FOR D=1 TO 100:NEXT D
150 GOTO 60
```

Note: If you are using a Color Computer, delete line 5. Also, change the number 56 in lines 120 and 130 to 28.

Thanksgiving Menu Reader

Many computer programs have menus. The menus list things that the user can do with the program. For example, a menu might ask you to choose between writing a story and reading a story.

Our Thanksgiving Menu Reader game works a lot like a computer program menu. You begin with a main menu (top of diagram). There, you can choose either A (turkey) or B (ham). If you choose A (turkey), you are sent to the turkey menu. The turkey menu tells you to choose between dark meat and white meat. If you choose white meat, for example, you are sent to a third menu—the white meat menu.

In this game, there are six dinner guests. Each one ate a different meal for Thanksgiving. We've told you what letters they chose from the Menu Reader. Match the letters with the choices on the menu to find out what each person ate.

1. Mr. Gobble chose A, B, A.
He ate: TURKEY, WHITE MEAT, NO GRAVY.

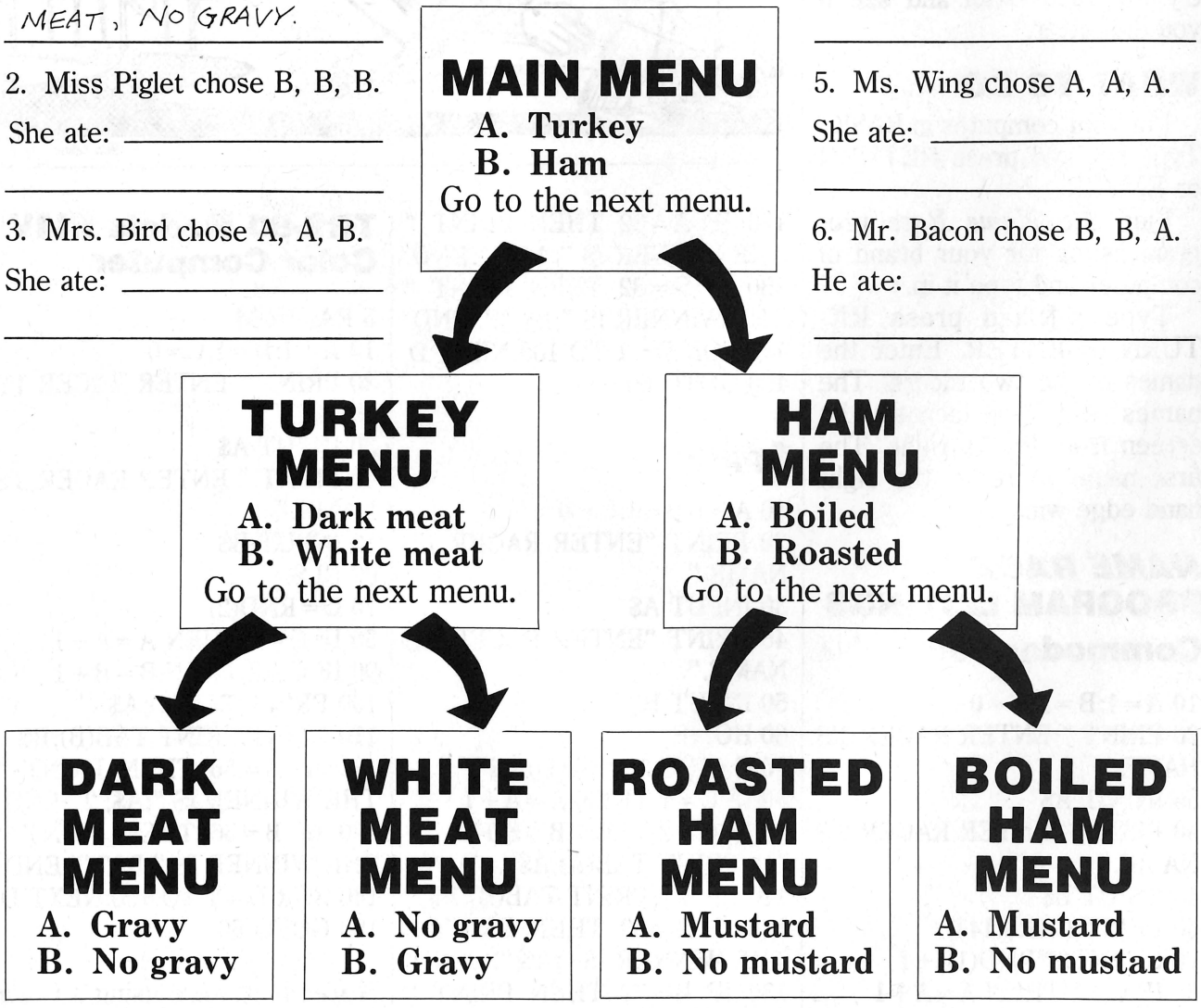
2. Miss Piglet chose B, B, B.
She ate: _____

3. Mrs. Bird chose A, A, B.
She ate: _____

4. Mr. Pork chose B, A, A.
He ate: _____

5. Ms. Wing chose A, A, A.
She ate: _____

6. Mr. Bacon chose B, B, A.
He ate: _____



Answers to Thanksgiving Menu Reader appear on page 62 of *Teaching and Computers* magazine.

Four-Pointed Star Ornament

This four-pointed star ornament is made up of eight right triangles arranged in a square formation. (See task card illustration below.) It is the easiest of the three ornaments to make.

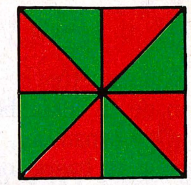
Boot Logo into your computer and load the SHAPES file. (See page 23 for procedure listings.) Instruct students to complete Task Card 1 individually. The card asks students to use Logo to create the square and right triangle pattern that is drawn on the task card. Following is a sample solution to the exercise. Other solutions are possible.

```
TO STAR :D
  REPEAT 4 [SQUARE :D RT.TRI :D RT 45]
END
```

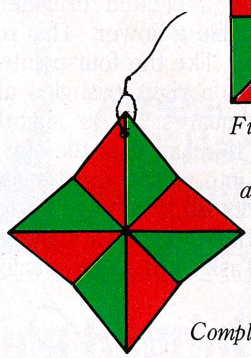
How to Assemble the Star

After students have completed the task card, help them make their own printout of the square and right triangle pattern they made on the Logo screen. Tell kids that with a few easy folds, they can turn their tessellating pattern into a beautiful holiday ornament. Give children the following instructions for assembly:

1. Color the triangles alternately with two different colored markers. For example, color one triangle red, the next one yellow, the following one red, and so on.
2. Cut out the pattern and punch a small hole in the upper right corner.
3. Fold the pattern in half from left to right. Crease the fold firmly with your thumbnail. Then unfold lightly, leaving the crease visible.
4. Fold the pattern in half from bottom to top. Crease firmly. Then unfold lightly.
5. Turn over the pattern so that the uncolored side is facing you. Fold the pattern diagonally by bringing the upper right corner to meet the lower left corner. Crease firmly. Then unfold lightly.
6. Bring the upper left corner to meet the lower right corner. Crease firmly. Then unfold lightly.
7. Turn the star over so that the colored side is facing you. Pass a colored string through the hole and tie the ends together.
8. Hang the ornament on a tree, in a window, or from a ceiling.



Fill in the eight triangles with alternate colors.



Completed Ornament

USE WITH STAR ORNAMENT **CUT OUT AND LAMINATE**

TASK CARD 1

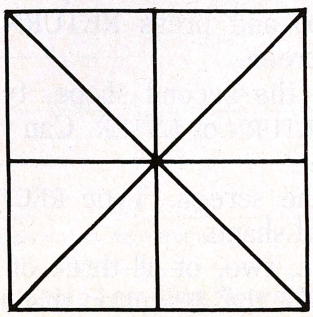
Square and Triangle

DESIGN

DIRECTIONS: Use Logo to draw the design at right. These hints will get you started.

1. The design has two kinds of shapes in it. What are they?
2. To see one of the shapes, type SQUARE 80 and press RETURN or ENTER. Clear the screen. To make the shape bigger, type SQUARE 100 and press RETURN or ENTER. Clear the screen.
3. To see the second shape, type RT.TRI 80 and press RETURN or ENTER. Can you make the shape bigger?
4. Use the SQUARE and RT.TRI procedures to make the design.

Challenge: Does the design have any shapes that overlap? Are there any spaces in between the shapes? The answer to both questions is no. That means the design is a *tessellation*.



Rosette Ornament

A rosette is a pleated ornament made to resemble a flower. This rosette ornament, like the four-pointed star, is based on right triangles arranged into squares. It is slightly more difficult to make than the star.

Boot Logo into your computer and load the SHAPES file. (See page 23 for procedure listings.) Instruct students to complete Task Card 2 individually.

The card asks students to use Logo to create the rosette pattern that is drawn on the task card. Following is a sample solution to the exercise. Other solutions are possible.

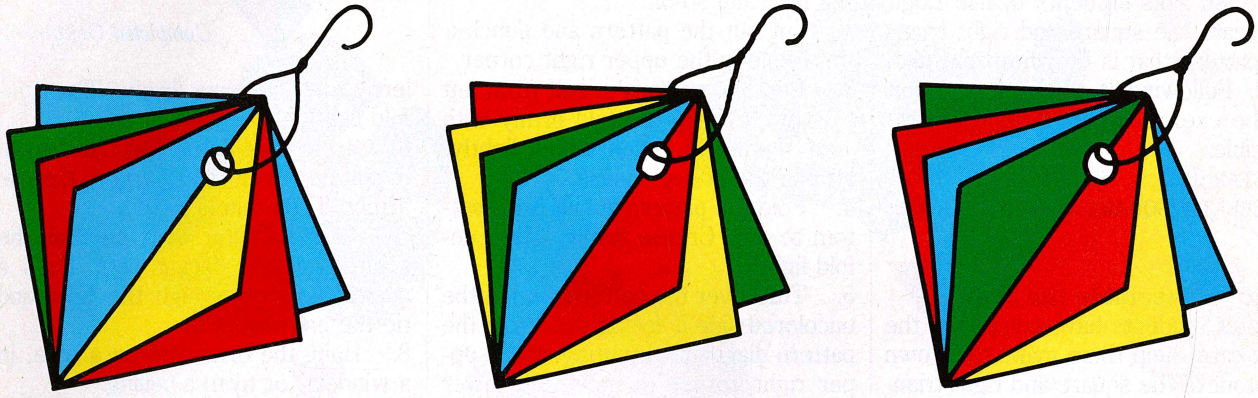
```
TO ROSETTE :D
  RT 180 SQUARE :D RT.TRI :D
  RT 45 SQUARE :D RT.TRI :D
END
```

How to Assemble the Rosette

After students have completed the task card, help them to make four printouts of their Logo pattern. Tell kids that they are going to use their printouts to make an ornament that unfolds like a rose.

Give students the following instructions for assembly.

(continued on page 47)



USE WITH ROSETTE ORNAMENT **CUT OUT AND LAMINATE**

TASK CARD 2

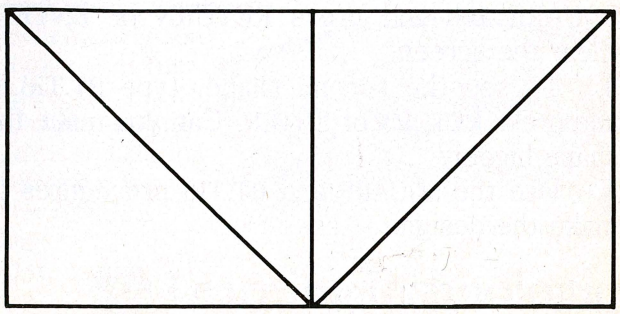
Rectangle and Triangle

DESIGN

DIRECTIONS: Use Logo to draw the design on this card. These hints will get you started.

1. The design has three shapes in it. What are they?
2. To see one of the shapes, type SQUARE 80 and press RETURN or ENTER. Clear the screen. To make the shape bigger, type SQUARE 100 and press RETURN or ENTER. Clear the screen.
3. To see the second shape, type RT.TRI 80 and press RETURN or ENTER. Can you make this shape bigger?
4. Clear the screen. Type RECTANGLE 40 to see the third shape.
5. Use one, two, or all three of these procedures to make the design on this card.

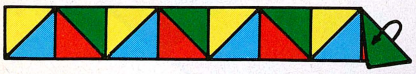
Challenge: Repeat the design several times to make a pattern on the screen. The designs should not overlap and there should be no spaces in between. When you're done, you will have a large *tessellation*!



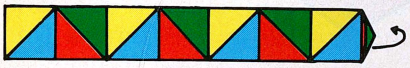
LOGO ORNAMENTS

1. Take one pattern piece and color each of its four right triangles a different color. Color the other three pattern pieces so that they are identical to the first piece.
2. Cut out the four pieces. Tape them together, side by side, to form a single strip.

3. Fold the last triangle (green in the example) forward to cover the second to last triangle (orange). Press the diagonal fold firmly.



4. Fold the orange and green triangles behind the strip. Press the vertical fold firmly.



5. Fold the blue triangle forward to cover the yellow triangle. Crease the diagonal fold firmly.

6. Fold the green, orange, blue, and yellow triangles behind the next green triangle. Press the vertical fold firmly.

7. Repeat Steps 3 to 6 three more times. The strip will look like this:

8. The triangles should be pointing to the right. Flip the bottom and top triangles to the left and tape them together.

9. Flip two top triangles and one bottom triangle to the left. There will be four triangles on either side of the center line. Punch a hole about three-eighths of an inch from the top.
10. Pass colored string through the hole and tie securely.
11. Spread out the triangles evenly.

12. Hang the ornament on a tree, in a window, or from a ceiling.

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American Heart Association

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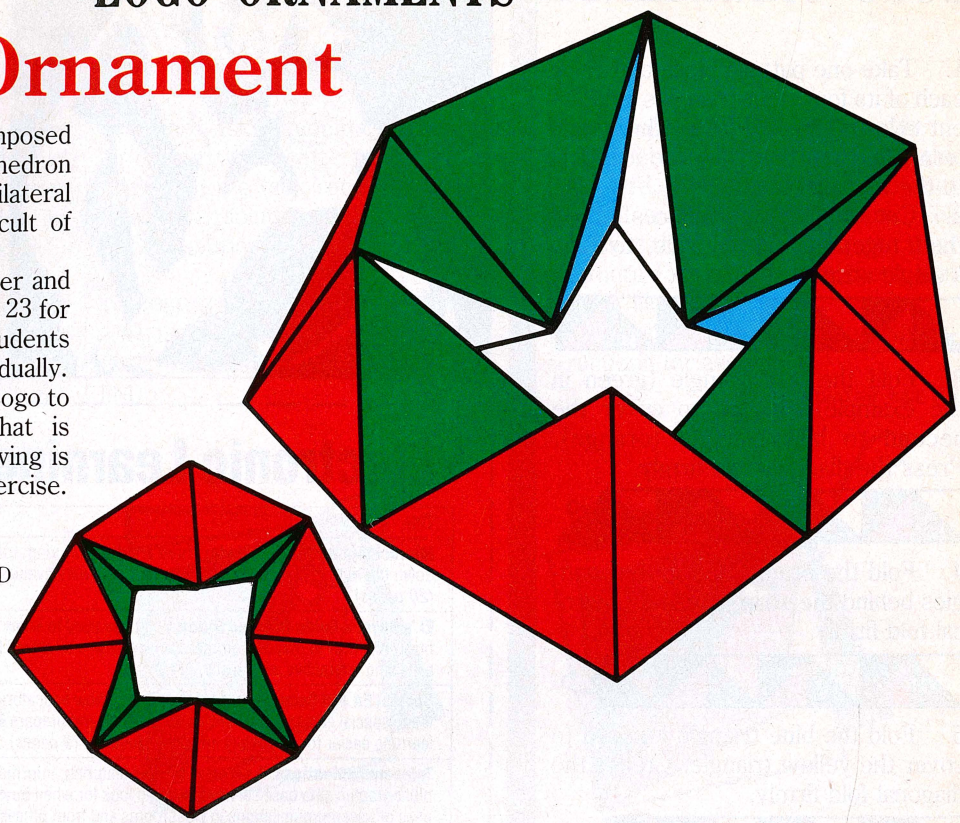
Wreath Ornament



The wreath ornament is composed of eight tetrahedrons. (A tetrahedron is a solid made of four equilateral triangles.) It is the most difficult of the three ornaments to make.

Boot Logo into your computer and load the SHAPES file. (See page 23 for procedure listings.) Instruct students to complete Task Card 3 individually. The card asks children to use Logo to create the wreath pattern that is drawn on the task card. Following is a sample solution to the exercise. Other solutions are possible.

```
TO WREATH :D
  LT 210 EQ.TRI :D LT 60 EQ.TRI :D
  FD :D RT 60
  EQ.TRI :D LT 60 EQ.TRI :D
END
```

(continued on page 49)

USE WITH WREATH ORNAMENT **CUT OUT AND LAMINATE**

TASK CARD 3

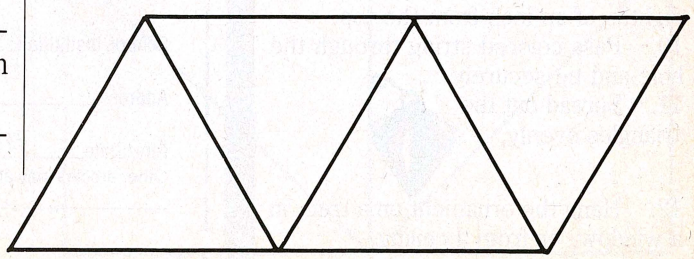
Triangle

DESIGN

DIRECTIONS: Use Logo to make the design on this card. These hints will get you started.

1. The design is made of a special kind of triangle. Do you know why it is special? It's special because all the sides are the same length. It is called an *equilateral* triangle.
2. To see an equilateral triangle on the screen, type EQ.TRI 50 and press RETURN or ENTER.
3. Clear the screen. To see a smaller equilateral triangle, type EQ.TRI 30. Can you make an equilateral triangle as big as the screen?
4. Use the EQ.TRI procedure to make the design.

Challenge: Repeat your equilateral triangles several times to make a pattern on the screen. The triangles should not overlap and there should be no spaces in between them. When you're done, you'll have a *tessellation!*

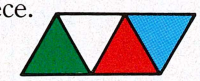


LOGO ORNAMENTS

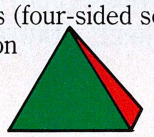
How to Assemble the Wreath

After students have completed the task card, help them make eight printouts of their Logo pattern. Tell kids that they are going to use their printouts, or pattern pieces, to make a holiday wreath. Give students the following directions for assembly:

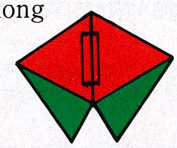
1. Take one of the pattern pieces and color each of its four triangles a different color. Color the other seven pattern pieces so that they are identical to the first piece.



2. Cut out the eight pattern pieces.
3. Use a ruler and a ball point pen (preferably inkless) to score the three internal lines of each pattern piece.
4. For each of the eight pattern pieces, fold along the score lines to form tetrahedrons (four-sided solids). Use the illustration as a guide.

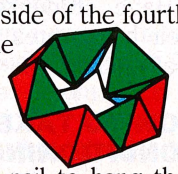


5. Tape the three open edges of each tetrahedron closed.
6. Hold two tetrahedrons so that the orange sides are touching and the green sides are facing you. Tape them together along the orange edge.

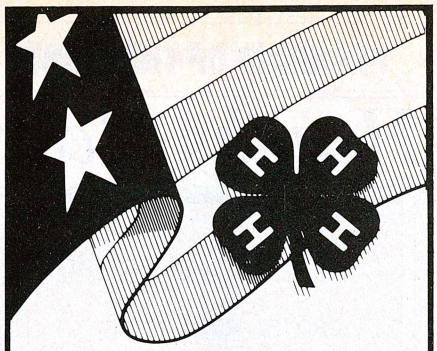


7. Repeat three more times with the other tetrahedrons.
8. Arrange the four figures so that all the green sides are facing you. Join the first and second tetrahedron sets by taping them together along the green side. Repeat with the second and third sets and the third and fourth sets.

9. Tape the green side of the fourth set to the green side of the first set to form a ring.



10. Use tape or a nail to hang the wreath ornament on a wall or door.



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ANSWERS TO POSTER WORKSHEETS

Following are answers for the intermediate worksheet, "Early Computer History."

La Pascaline
Date: 1664
Inventor: Blaise Pascal
How it worked: You could add or subtract by moving the gears and levers on this small box.

Jacquard's Loom
Date: 1801
Inventor: Joseph-Marie Jacquard
How it worked: A moving belt of punched cards told thread on a loom how to form colorful patterns in fabric.

Analytical Engine
Date: 1834
Inventor: Charles Babbage
How it worked: Plans for this steam-powered machine called for punched cards that would feed the machine information and for gears that would process it. The technology of the day wasn't good enough to allow anyone to construct it though.

Following are answers for the intermediate worksheet, "History of Electronic Computers."

UNIVAC
Date: 1951
Inventors: John Mauchly and John Eckert
Important Features: Contained 5,400 vacuum tubes. It was the first computer to be sold to a business.

CDC 1604
Date: 1958
Inventor: Seymour Cray
Important Features: The first fully transistorized computer. It could fit in a clothes closet.

APPLE II MICROCOMPUTER
Date: 1976
Inventor: Steve Wozniak
Important Features: Used integrated circuits and it was about the size of a typewriter. It was the first microcomputer to be designed for home use.

Healthy Heart

BY HERB BOXER
AND LORRAINE HOPPING

Healthy Heart is a BASIC program that evaluates students' physical condition based on their heart rate at rest and after exercise. A printer is required.

HOW THE PROGRAM WORKS

Students take a conditioning test in which they measure their heart rate at rest and at timed intervals after exercise. They record the test results on a worksheet (page 52) and transfer the results into the computer.

The computer uses the data to calculate each student's condition rating (a score from 4 to 16 that measures the student's physical condition) and the average condition rating for a group of up to 30 students.

The computer then prints out a health report for each student. (See illustration.) The report includes the student's condition rating, an explanation of how the rating was determined, and a comparison of the student's test results with the group average.

After all the individual reports have been printed, the computer prints out a group report that lists each member's test results and the averages for the group. (See illustration.)

```
***** HEALTH REPORT FOR BILL *****

GROUP: ROOM 112B                    STUDENT #1

  IN GENERAL, THE LOWER YOUR HEART RATE, THE BETTER
CONDITION YOU ARE IN.
  BILL, YOUR HEART RATE AT REST WAS 62. THE
AVERAGE HEART RATE AT REST FOR THE GROUP WAS 70.2.
  YOUR HEART RATE WAS LOWER THAN THE AVERAGE.


  EVERYONE'S HEART RATE INCREASES AFTER EXERCISE.
  BILL, YOUR HEART RATE AFTER EXERCISE WAS 110.
  THAT'S AN INCREASE OF 48 BEATS PER MINUTE.
  THE AVERAGE GROUP INCREASE WAS 49 BEATS PER MINUTE.


  AFTER THE EXERCISE THAT YOU DID, YOUR HEART RATE
SHOULD RETURN TO NORMAL WITHIN TWO TO THREE MINUTES.
THE LESS TIME IT TAKES, THE BETTER SHAPE YOU ARE IN.
  BILL, YOUR HEART RATE TWO MINUTES AFTER EXER-
CISE WAS 90.
  YOUR HEART RATE THREE MINUTES AFTER EXERCISE WAS 70.
  YOUR HEART RATE TOOK MORE THAN THREE MINUTES TO
RETURN TO NORMAL.


  THE COMPUTER SCORED YOUR HEART RATES AT REST.
AFTER EXERCISE, AFTER TWO MINUTES, AND AFTER THREE
MINUTES ON A SCALE OF 1 TO 4. IT THEN ADDED THE
SCORES TO GET YOUR CONDITION RATING. THE HIGHEST
POSSIBLE CONDITION RATING IS 16. THE LOWEST IS 4.
  YOUR CONDITION RATING OF 9 MEANS THAT YOU ARE IN
GOOD CONDITION.
  THE AVERAGE CONDITION RATING FOR THE GROUP WAS 10.9.


  BILL, THIS REPORT CAN ONLY GIVE YOU A GENERAL
IDEA OF YOUR PHYSICAL CONDITION. YOU CAN IMPROVE
YOUR CONDITION BY EATING AND SLEEPING RIGHT AND
EXERCISING REGULARLY.
```

The Healthy Heart *program prints out a personal health report for each student. The report includes the results of the student's conditioning test.*

HOW TO FIND YOUR HEART RATE

One way to measure your physical condition is to find your *heart rate.* Your heart rate is the number of times your heart beats in a minute.

Heart rates can range from 40 to 90, but most will fall between 60 and 80. In general, if you have a low heart rate (60 to low 70s), you are in good physical condition. A high heart rate often indicates poor physical condition, although this is truer for adults than for children.

One way to measure your heart rate is to place your hand over your heart and count the number of times it beats in one minute.

Another way is to take your pulse. To find your pulse, place your three middle fingers on the right or left wrist, next to the palm of the hand. Move the fingers around gently until you feel a strong beat. You can also find your pulse on your neck, slightly to the right or left of your larynx.

Once you find your pulse, count the number of times it beats in 30 seconds and then multiply by two. The result is your heart rate.

Have students practice finding their heart rates by using the pulse beat method.

HOW TO TAKE THE CONDITIONING TEST

For the conditioning test, students will first find their heart rate at rest,

********** ROOM 112B GROUP TEST RESULTS **********

STUDENT'S NAME	HEART RATE AT REST	AFTER EXERCISE	AFTER 2 MINUTES	AFTER 3 MINUTES	CONDITION RATING
1. BILL	62	110	90	70	9
2. PAULA	66	122	82	68	10
3. FRANCINE	70	122	80	72	12
4. JENNIFER	76	130	100	84	8
5. GARY	74	120	82	74	12
6. GLENN	74	124	80	76	12
7. ANGELA	68	112	70	70	12
8. GREG	70	110	82	78	11
9. ELEANOR	62	110	70	64	12
10. SANDY	80	132	90	82	11
GROUP AVERAGE	70.2	119.2	82.6	73.8	10.9

The group health report shows students' condition ratings and heart rates before and after exercise.

CONDITION RATING SCALE:

SCORE	CONDITION
16	EXCEPTIONAL
14-15	EXCELLENT
12-13	VERY GOOD
9-11	GOOD
5-8	FAIR
4	VERY POOR

The program rates health from 4 to 16.

and then find their heart rate after timed intervals of exercise.

Divide students into groups of five to 30 students. Designate a name for each group, such as Room 112B or Third Grade.

For the exercise part of the test, you will need access to a secure platform or step that is about 14 to 20 inches high. To do the exercise, students put their right foot on the platform and then bring up their left foot. (They will be standing on the platform.) They then step down, first with the left foot and then with the right foot. Each step-up-step-down should take about two seconds. Have kids practice the exercise to get the hang of it.

Pass out one copy per student of the Healthy Heart Worksheet (page 52). Tell kids to find a partner to help with the timing. Then instruct them to follow the instructions for the test on the worksheet. (Younger students will need adult assistance.)

After students are done, collect the worksheets and check them for any obvious errors such as math mistakes or highly irregular heart rates that appear to be miscounted.

USING THE PROGRAM

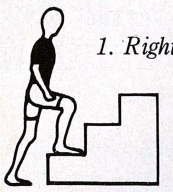
After everyone in a group has finished the conditioning test and has completed the worksheet, run the *Healthy Heart* program. The program will ask each member of the group to enter his or her name and test results. After everyone in the group has done so, the computer will automatically print out the individual and group reports.

Herb Boxer is a K–6 computer and science teacher at P.S. 7, District 10, Bronx, NY. ***Lorraine Hopping*** is associate editor for *Teaching and Computers*. Special thanks to ***Patricia Bubel, PhD.***, physical education teacher, Northville High School, Northville, MI, for her technical assistance.

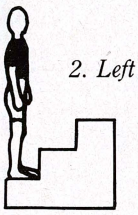
HEALTHY HEART WORKSHEET

NAME: _____ GROUP: _____

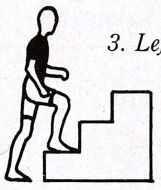
Heart-Rate Exercise



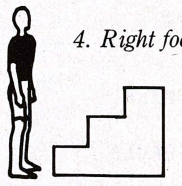
1. Right foot up



2. Left foot up



3. Left foot down



4. Right foot down

1. Heart Rate at Rest

Sit down and relax for one minute. Count the number of times your pulse beats in 30 seconds. Write that number in the blank provided. Multiply by 2. Write your answer in the Heart Rate blank.

Beats per 30 seconds: _____
Multiply by 2: X 2
_____
Heart Rate: _____

2. Heart Rate After Exercise

Do the exercise (above) for three minutes. (Ask a partner to time you.) As soon as the time is up, count the number of times your pulse beats in 10 seconds. Write the number in the blank provided. Multiply by 6. Write your answer in the Heart Rate blank.

Beats per 10 seconds: _____
Multiply by 6: X 6
_____
Heart Rate: _____

3. Heart Rate Two Minutes After Exercise

Wait until exactly two minutes has passed since you stopped exercising. Count the number of times your pulse beats in 15 seconds. Write the number in the blank provided. Multiply by 4. Write your answer in the Heart Rate blank.

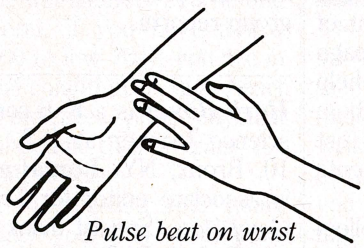
Beats per 15 seconds: _____
Multiply by 4: X 4
_____
Heart rate: _____

4. Heart Rate Three Minutes After Exercise

Wait until exactly three minutes has passed since you stopped exercising. Count the number of times your pulse beats in 30 seconds. Write the number in the blank provided. Multiply by 2. Write your answer in the Heart Rate blank.

Beats per 30 seconds: _____
Multiply by 2: X 2
_____
Heart rate: _____

TWO WAYS TO FIND YOUR PULSE



Pulse beat on wrist

1. Place your middle three fingers on your right or left wrist, next to your palm. Move your fingers gently until you feel a strong beat.

Pulse beat on neck

2. Place your middle three fingers on your neck, slightly to the right or left of your throat. Move your fingers gently until you feel a strong beat.

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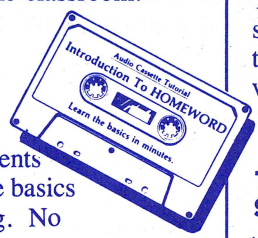

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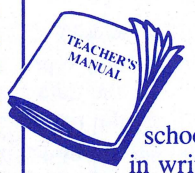

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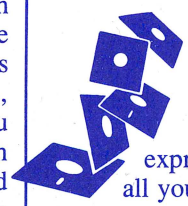

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- Educational Software Report, Electronic Learning

"HomeWord...exceptional value for those who want a sophisticated but easy-to-learn program."
- Classroom Computer Learning

HOMEWORD FEATURES INCLUDE:

FANCY FILE HANDLING
Handy back-up feature creates back-up files, to guard against the accidental erasing of files.

Free memory indicator shows when document is approaching computer's memory capacity.

Free disk indicator shows when disk is getting full, so you can save and start another data disk.

File merging feature inserts whole documents anywhere in the file currently in memory.

File linking feature makes it possible to print documents that are potentially unlimited to size.

SPECIAL PRINT OPTIONS
Text prints in normal, underline and boldface type styles, as well as special type styles supported by individual printers, including pica and elite, italic, headline and compressed print.

Typewriter feature offers the option of printing out lines quickly, as they are typed, without saving to disk.

Print option allows the user to print an entire document or just selected pages.

SOFTWARE COMPATIBILITY
All HomeWord files can be used with HomeWord Filer, the data base manager and mail merge system that's the next step toward your goal of turning your students into computer-literates.

TEXT EDITING
Insert and Change/Replace modes allow two ways to enter text.

Twelve cursor control keys (documented on handy reference card) allow cursor movement by character, word, line, screen page and formatted page.

Edit functions include the unerase feature, which allows users to change their minds after they've erased text, as well as the highly prized global search and replace feature.

PAGE LAYOUT
On-screen picture of entire formatted page shows exactly what current page will look like when printed --displays margins, centered lines, and line, paragraph and page breaks

Customize option allows users to define their own moveable tab settings.

Top, bottom, left and right margins are adjustable anywhere within a document.

Line spacing is adjustable within a document.

Text can be justified up to three ways in any document: left, right and both sides.

Automatic point outlining uses decimals or number/letter points in up to four levels.

Flexible page numbering feature allows users to denote page numbering in an infinite number of ways (#, p#, p. #, P#, page #, Page #, Name/#, etc.) or turn off page numbering altogether.

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c. ☐ Both of the above

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b. ☐ Recommend program
c. ☐ Approve purchase
d. ☐ All of the above

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b. ☐ Educational Dealer
c. ☐ Catalog
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4. Do you recommend to students and parents?
Yes ☐ No ☐

1	2	3	4	5	6
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Yes ☐ No ☐

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145 146 147 148 149 150

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c. ☐ Catalog
d. ☐ Mass merchandiser

4. Do you recommend to students and parents?
Yes ☐ No ☐

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85 86 87 88 89 90
91 92 93 94 95 96
97 98 99 100 101 102
103 104 105 106 107 108
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145 146 147 148 149 150

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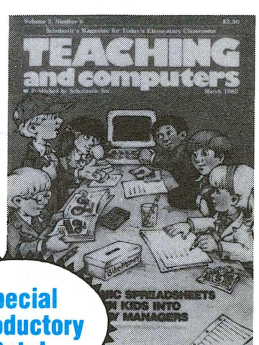

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PROGRAM LISTING FOR *HEALTHY HEART*

This program will run as listed on Apple computers. (Make sure your printer is set to the maximum line length before running the program.) To convert the program for use on Color Computers, Commodore 64 computers, and TRS-80 Models III and IV, see the Conversion Chart on page 70.

```
0  REM  HEALTHY HEART @ 1985 BY SCHOLASTIC INC.
10  HOME : CLEAR
20  PRINT "  WELCOME TO THE HEALTHY HEART PROGRAM!"
30  PRINT : PRINT "  THE PURPOSE OF THIS PROGRAM IS TO"
40  PRINT "FIND OUT WHAT CONDITION YOU ARE IN"
50  PRINT "BASED ON YOUR HEART RATE."
60  PRINT : PRINT "  YOU MUST COMPLETE THE CONDITIONING"
70  PRINT "TEST AND HEALTHY HEART WORKSHEET BEFORE"
80  PRINT "CONTINUING WITH THIS PROGRAM."
90  PRINT : PRINT "  PRESS <RETURN> TO BEGIN.": INPUT Z$
100  HOME : PRINT "  ENTER THE NAME OF THE GROUP AND"
110  PRINT "PRESS <RETURN>."
120  INPUT GN$
130  PRINT : PRINT "  HOW MANY PEOPLE ARE IN THE GROUP?"
140  INPUT S: IF S > 30 THEN  PRINT "  THAT'S TOO MANY.": GOTO 130
150  DIM N$(S),HR(S),RE(S),R2(S),R3(S),CR(S)
160  REM     N$=NAME, HR=HEART RATE AT REST, RE=RATE AFTER EXERCISE
170  REM   R2=RATE AFTER 2 MINUTES, R3=RATE AFTER 3 MINUTES, CR=CONDITION
     RATING
180  PRINT : PRINT "  EACH PERSON IN THE ";GN$
190  PRINT "GROUP WILL TAKE A TURN ENTERING THE"
200  PRINT "RESULTS OF HIS OR HER CONDITIONING"
210  PRINT "TEST. (THE RESULTS ARE ON YOUR HEALTHY"
220  PRINT "HEART WORKSHEET.)"
230  PRINT : PRINT "  WHEN EVERYONE HAS FINISHED, THE"
240  PRINT "COMPUTER WILL PRINT OUT A HEALTH REPORT"
250  PRINT "FOR EACH PERSON. THE REPORT WILL"
260  PRINT "INCLUDE A CONDITION RATING (SCORE) AND"
270  PRINT "AN EXPLANATION OF THE TEST RESULTS."
280  PRINT "  THE COMPUTER WILL ALSO PRINT OUT A"
290  PRINT "CHART OF THE TEST RESULTS OF THE WHOLE"
300  PRINT "GROUP."
310  PRINT : PRINT "  PRESS <RETURN> TO CONTINUE.": INPUT Z$
320  FOR P = 1 TO S: HOME
330  PRINT "  STUDENT #";P;" OF THE ";GN$
340  PRINT "GROUP PLEASE COME TO THE COMPUTER."
350  PRINT : PRINT "  ENTER YOUR NAME AND PRESS <RETURN>."
360  INPUT N$(P)
370  PRINT : PRINT "1. ENTER YOUR HEART RATE AT REST AND"
380  PRINT "PRESS <RETURN>.": INPUT HR(P)
390  PRINT : PRINT "2. ENTER YOUR HEART RATE RIGHT AFTER"
400  PRINT "EXERCISE AND PRESS <RETURN>.": INPUT RE(P)
410  PRINT : PRINT "3. ENTER YOUR HEART RATE TWO MINUTES"
420  PRINT "AFTER EXERCISE AND PRESS <RETURN>.": INPUT R2(P)
430  PRINT : PRINT "4. ENTER YOUR HEART RATE THREE MINUTES"
440  PRINT "AFTER EXERCISE AND PRESS <RETURN>.": INPUT R3(P)
450  PRINT : PRINT "  THANK YOU, ";N$(P);". PRESS <RETURN>."
460  INPUT Z$: GOSUB 5000: NEXT P
470  REM  CALCULATE GROUP AVERAGES
480 GC = GC / S:GH = GH / S:GE = GE / S:G2 = G2 / S:G3 = G3 / S
490  HOME : PRINT "  THE ";GN$;" GROUP HAS FINISHED"
500  PRINT "ENTERING ITS DATA."
510  PRINT : PRINT "  PLEASE MAKE SURE YOUR PRINTER IS ON"
520  PRINT "AND THE PAPER IS IN PLACE."
530  FOR P = 1 TO S
540  PRINT "  PRESS <RETURN> TO PRINT THE HEALTHY"
550  PRINT "HEART REPORT FOR ";N$(P);"."
560  INPUT Z$: PR# 1
570  PRINT "  ***** HEALTH REPORT FOR ";N$(P);" *****"
580  PRINT : PRINT "  GROUP: ";GN$,"   STUDENT #";P
590  PRINT : PRINT "  IN GENERAL, THE LOWER YOUR HEART RATE, THE BETTER"
600  PRINT "CONDITION YOU ARE IN."
610  PRINT "  ";N$(P);", YOUR HEART RATE AT REST WAS ";HR(P);". THE"
620  PRINT "AVERAGE HEART RATE AT REST FOR THE GROUP WAS ";GH;"."
630  IF HR(P) >  = GH + 3 THEN  PRINT "  YOUR HEART RATE WAS HIGHER THAN T
     HE AVERAGE."
640  IF HR(P) < GH + 3 AND HR(P) > GH - 3 THEN  PRINT "  YOUR HEART RATE W
     AS ABOUT THE SAME AS THE AVERAGE."
650  IF HR(P) <  = GH - 3 THEN  PRINT "  YOUR HEART RATE WAS LOWER THAN TH
     E AVERAGE."
660  PRINT : PRINT "  EVERYONE'S HEART RATE INCREASES AFTER EXERCISE."
670  PRINT "  ";N$(P);", YOUR HEART RATE AFTER EXERCISE WAS ";RE(P);"."
680  PRINT "  THAT'S AN INCREASE OF ";RE(P) - HR(P);" BEATS PER MINUTE."
690  PRINT "  THE AVERAGE GROUP INCREASE WAS ";GE - GH;" BEATS PER MINUTE."
700  PRINT : PRINT "  AFTER THE EXERCISE THAT YOU DID, YOUR HEART RATE"
710  PRINT "SHOULD RETURN TO NORMAL WITHIN TWO TO THREE MINUTES."
720  PRINT "THE LESS TIME IT TAKES, THE BETTER SHAPE YOU ARE IN."
```

(continued)

PROGRAM LISTING FOR *HEALTHY HEART* *(continued from page 55)*

```
730  PRINT "  ";N$(P);", YOUR HEART RATE TWO MINUTES AFTER EXER-"
740  PRINT "CISE WAS ";R2(P);"."
750  PRINT "  YOUR HEART RATE THREE MINUTES AFTER EXERCISE WAS ";R3(P);"."
760  IF R2(P) = HR(P) + 3 THEN  PRINT "  YOUR HEART RATE RETURNED TO NORMA
     L AFTER TWO MINUTES."
770  IF R3(P) < HR(P) + 3 THEN  PRINT "  YOUR HEART RATE RETURNED TO NORMA
     L AFTER THREE": PRINT "MINUTES."
780  IF R3(P) >  = HR(P) + 3 THEN  PRINT "  YOUR HEART RATE TOOK MORE THAN
      THREE MINUTES TO": PRINT "RETURN TO NORMAL."
790  PRINT : PRINT "  THE COMPUTER SCORED YOUR HEART RATES AT REST,"
800  PRINT "AFTER EXERCISE, AFTER TWO MINUTES, AND AFTER THREE"
810  PRINT "MINUTES ON A SCALE OF 1 TO 4. IT THEN ADDED THE"
820  PRINT "SCORES TO GET YOUR CONDITION RATING. THE HIGHEST"
830  PRINT "POSSIBLE CONDITION RATING IS 16. THE LOWEST IS 4."
840  PRINT "  YOUR CONDITION RATING OF ";CR(P);" MEANS THAT YOU ARE IN"
850  IF CR(P) = 4 THEN  PRINT "VERY POOR CONDITION."
860  IF CR(P) > 4 AND CR(P) < 9 THEN  PRINT "FAIR CONDITION."
870  IF CR(P) >  = 9 AND CR(P) < 12 THEN  PRINT "GOOD CONDITION."
880  IF CR(P) = 12 OR CR(P) = 13 THEN  PRINT "VERY GOOD CONDITION."
890  IF CR(P) = 14 OR CR(P) = 15 THEN  PRINT "EXCELLENT CONDITION."
900  IF CR(P) = 16 THEN  PRINT "EXCEPTIONAL CONDITION."
910  PRINT "  THE AVERAGE CONDITION RATING FOR THE GROUP WAS ";GC;"."
920  PRINT : PRINT "  ";N$(P);", THIS REPORT CAN ONLY GIVE YOU A GENERAL"
930  PRINT "IDEA OF YOUR PHYSICAL CONDITION. YOU CAN IMPROVE"
940  PRINT "YOUR CONDITION BY EATING AND SLEEPING RIGHT AND"
950  PRINT "EXERCISING REGULARLY."
960  PR# 0: HOME
970  IF P < S + 1 THEN  PRINT "  ADJUST THE PAPER FOR THE NEXT REPORT."
980  NEXT P
990  PRINT "  PRESS <RETURN> TO PRINT OUT THE GROUP"
1000  PRINT "TEST RESULTS.": INPUT Z$: PR# 1
1010  PRINT "          *************** ";GN$;" GROUP TEST RESULTS ********
     ********"
1020  PRINT : PRINT "STUDENT'S  ","HEART RATE","AFTER","AFTER 2","AFTER 3"
     ,"CONDITION"
1030  PRINT "NAME          ","AT REST","EXERCISE","MINUTES","MINUTES","RATING"
1040  PRINT "-------------------------------------------------------------
     ----------------------------"
1050  FOR P = 1 TO S
1060  PRINT P;". ";N$(P),HR(P),RE(P),R2(P),R3(P),CR(P)
1070  PRINT : NEXT P
1080  PRINT "-------------------------------------------------------------
     ----------------------------"
1090  PRINT "GROUP AVERAGE",GH,GE,G2,G3,GC
1100  PRINT : PRINT : PRINT "CONDITION RATING SCALE:"
1110  PRINT : PRINT "SCORE","CONDITION"
1120  PRINT "------------------------------"
1130  PRINT "16","EXCEPTIONAL"
1140  PRINT "14-15","EXCELLENT"
1150  PRINT "12-13","VERY GOOD"
1160  PRINT "9-11","GOOD"
1170  PRINT "5-8","FAIR"
1180  PRINT "4","VERY POOR"
1190  PR# 0: PRINT "  WOULD YOU LIKE TO RUN THE PROGRAM"
1200  PRINT "AGAIN FOR ANOTHER GROUP (Y/N)?"
1210  INPUT CH$
1220  IF CH$ = "Y" OR CH$ = "YES" THEN 0
1230  IF CH$ <  > "N" THEN 1210
1240  PRINT "  GOODBYE....": END
5000  REM  CALCULATE CONDITION RATING
5010  IF HR(P) <  = 75 THEN A = 4
5020  IF HR(P) <  = 80 AND HR(P) > 75 THEN A = 3
5030  IF HR(P) <  = 90 AND HR(P) > 80 THEN A = 2
5040  IF HR(P) > 90 THEN A = 1
5050  IF RE(P) - HR(P) <  = HR(P) * .2 THEN B = 4
5060  IF RE(P) - HR(P) <  = HR(P) * .4 AND RE(P) - HR(P) > HR(P) * .2 THEN  B = 3
5070  IF RE(P) - HR(P) <  = HR(P) * .6 AND RE(P) - HR(P) > HR(P) * .4 THEN  B = 2
5080  IF RE(P) - HR(P) > HR(P) * .6 THEN B = 1
5090  IF R2(P) - HR(P) = 5 THEN C = 4
5100  IF R2(P) - HR(P) <  = 10 AND R2(P) - HR(P) > 5 THEN C = 3
5110  IF R2(P) - HR(P) <  = 15 AND R2(P) - HR(P) > 10 THEN C = 2
5120  IF R2(P) - HR(P) > 15 THEN C = 1
5130  IF R3(P) - HR(P) <  = 5 THEN D = 4
5140  IF R3(P) - HR(P) <  = 10 AND R3(P) - HR(P) > 5 THEN D = 3
5150  IF R3(P) - HR(P) <  = 15 AND R3(P) - HR(P) > 10 THEN D = 2
5160  IF R3(P) - HR(P) > 15 THEN D = 1
5170 CR(P) = A + B + C + D: REM  INDIVIDUAL CONDITION RATING
5180 GC = GC + CR(P): REM   GROUP CONDITION RATING
5190 GH = GH + HR(P): REM   GROUP HEART RATE AT REST
5200 GE = GE + RE(P): REM  GROUP HEART RATE AFTER EXERCISE
5210 G2 = G2 + R2(P): REM  AFTER 2 MINUTES
5220 G3 = G3 + R3(P): REM  AFTER 3 MINUTES
5230  RETURN
```

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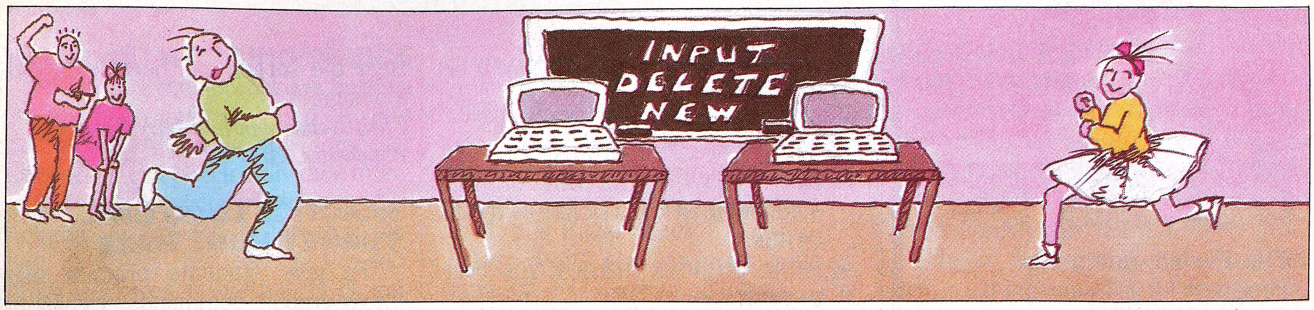


In Keyboard Relay Race, teams race to type spelling words into the computer.

PLAY KEYBOARD RELAY

Keyboard Relay Race is an action game that increases students' keyboarding speeds as it drills them on their spelling words. To play, you need two computers, two word processing programs, and a list of spelling words that contains half as many words as you have students.

Before you begin the race, write the spelling words on the chalkboard. Boot up a word processor in each computer. Divide the class into two teams and have one team line up in front of each computer.

When you say to go, the first member in each team types in the top word on the list, presses RETURN or ENTER, and runs to the back of the line. The next player then steps up to the computer and checks the spelling of the word. If the word is spelled incorrectly, the player calls the teammate back to retype the word. If the word is typed correctly, this player types the next word in the list, presses RETURN or ENTER, and runs to the end of the line. The race continues in this manner until all the words have been entered. The first team to type all words correctly wins.

Mary Ellen Switzer
Del Mar, CA

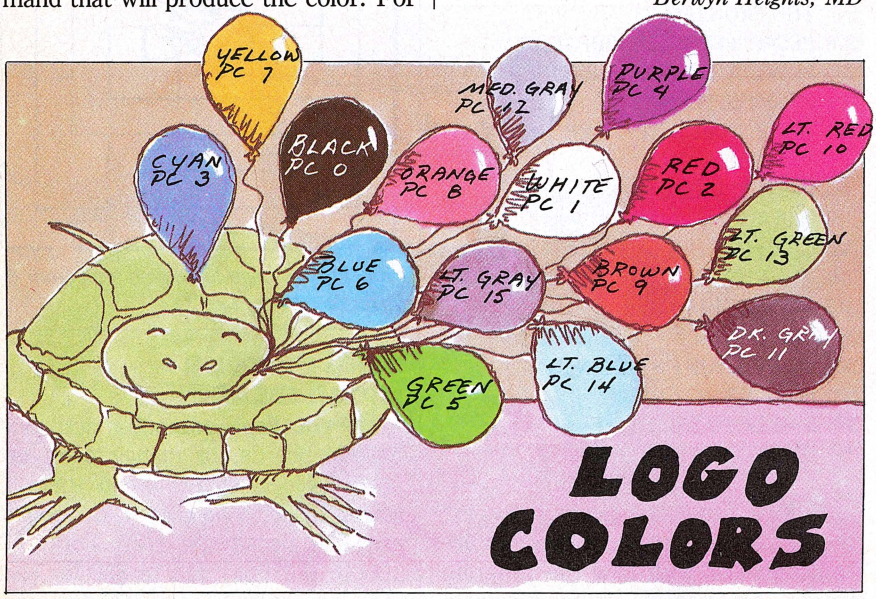
CREATE A LOGO COLOR DISPLAY

Here's a bulletin board that makes a colorful and useful addition to any Logo classroom.

From construction paper, cut out a turtle shape and tack it to the center of the board. Now cut out balloon shapes, one to match each color your Logo program can produce. In the center of each balloon, write the color of the balloon and the Logo command that will produce the color. For example, if you use Commodore Logo, you would write the word "Red" and "PC2" on the red balloon.

After you've labeled the balloons, tack them randomly around the turtle. Attach a piece of yarn to each balloon. Gather the yarn pieces together and tack them to the turtle's mouth. At the top of the board, tack up paper letters that say "Logo Colors."

Donna Mason
Berwyn Heights, MD



This bulletin board displays the color commands for Commodore Logo.

TURN YOUR ATARI INTO A SKETCH PAD

With the help of this BASIC program, your students can sketch designs on an Atari computer.

When students run the program, the computer explains that the monitor is divided into 159 columns across and 159 rows down. Students are told that they can draw lines by moving the small dot that appears on the screen from one column and row to another. To move the dot, students must enter two numbers, separated by a comma. The computer explains that the first number tells the dot what column number to move across to on the screen. The second number tells the dot what row number to move up or down to on the screen. The computer explains that these two numbers are called *coordinates*. Students are told that as the dot moves from one set of coordinates to another, it draws a line on the screen.

```
10 DIM C$(10),R$(10)
20 PRINT "THIS PROGRAM LETS YOU
   DRAW ON YOUR ATARI."
30 PRINT "TO DRAW WITH THIS PRO-
   GRAM, YOU SHOULD KNOW THAT
   THE COMPUTER SCREEN IS"
40 PRINT "DIVIDED INTO 159 IMAGINARY
   COLUMNS"
```

(continued)

Mindy Ball

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(continued from page 57)

```
50 PRINT "ACROSS THE SCREEN AND 159
   IMAGINARY"
60 PRINT "ROWS DOWN THE SCREEN."
70 PRINT "YOU CAN DRAW BY"
80 PRINT "MOVING THE DOT ON THE
   SCREEN FROM ONE LOCATION TO AN-
   OTHER."
90 PRINT "TO MOVE THE DOT, YOU TYPE
   IN TWO"
100 PRINT "NUMBERS, SEPARATED BY A
   COMMA,"
110 PRINT "AND PRESS RETURN."
120 PRINT "THE FIRST NUMBER TELLS
   THE DOT THE COLUMN NUMBER TO
   MOVE ACROSS TO."
140 PRINT "THE SECOND NUMBER TELLS
   THE DOT"
150 PRINT "THE ROW NUMBER TO MOVE
   DOWN TO."
155 PRINT "FOR EXAMPLE, 78,78 MOVES
   THE DOT TO THE CENTER OF THE
   SCREEN."
160 PRINT "THESE TWO NUMBERS ARE
   CALLED COORDINATES."
170 PRINT "PRESS RETURN TO CONTIN-
   UE."
180 INPUT C$
190 PRINT "AS THE DOT MOVES FROM
   ONE"
200 PRINT "SET OF COORDINATES TO
   ANOTHER, A LINE IS"
210 PRINT "DRAWN ON THE SCREEN."
240 PRINT "IF YOU WANT TO CLEAR THE
   SCREEN,"
250 PRINT "TYPE IN 160,160."
260 PRINT "WHEN YOU WANT TO END
   THE PROGRAM,"
270 PRINT "PRESS THE BREAK KEY."
280 PRINT "THEN TYPE GRAPHICS 0 AND
   PRESS RETURN."
290 PRINT "WHEN YOU ARE READY TO
   BEGIN DRAWING,"
300 PRINT "PRESS THE RETURN KEY."
310 INPUT R$
320 GRAPHICS 1+16
330 TRAP 110
340 GRAPHICS 15
350 COLOR 2:F=1
360 INPUT X,Y:IF F>1 THEN 390
370 PLOT X,Y
380 F=2:GOTO 360
390 DRAWTO X,Y:GOTO 360
```

Before students begin, suggest they enter random coordinates to become familiar with how the program works. Once kids are comfortable with using the program, tell them to clear the screen and begin sketching a design.

Chris Gotherman and Jerry Robinson
Winchester, OH

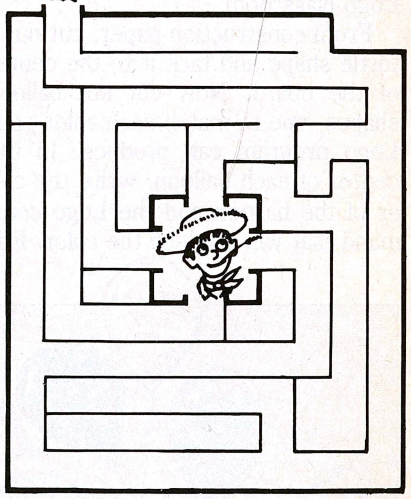
PRACTICE LOGO ON A TURKEY HUNT MAZE

To give students practice using Logo graphic commands, I challenge them to maneuver the turtle through a Turkey Hunt Maze.

First, I use erasable markers to draw the maze (see illustration) on a transparent sheet. In the center of the maze, I draw a farmer. On the edge of the maze, I draw a turkey. Then I boot Logo into the computer and tape the maze on the screen, making sure the farmer is at the turtle's HOME position.

Now I tell students to use the commands FORWARD, BACK, LEFT, and RIGHT to draw a path that leads from the farmer to the turkey.

Lesli Rotenberg
New York, NY



Students use Logo to draw a path from the farmer to the turkey.

SEND US YOUR MICRO IDEAS

Do you have computer activities, bulletin boards, or management tips you'd like to share? Send them to Micro Ideas, *Teaching and Computers,* 730 Broadway, New York, NY 10003. We'll pay $15 to $30 for each idea we publish, and $5 for each quick, one-sentence tip we use. ■

Circle 17 on Reader Service Card.

TOOLS OF THE TRADE

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As many as 60 color or monochrome monitors can be connected to one IVAN console. IVAN is compatible with most personal computers including Apple, Atari, Commodore, IBM, and Radio Shack.

Price: *$450 per computer hookup.* Contact: *PC Learning Systems, 7754 Harwood Ave., Wautosa, WI 53213; 414/774-4644.*

(Circle 1 on Reader Service Card.)

COMMODORE 128

Few computers have been able to make their debut and claim at the same time to have more than 3,000 software programs already available to them. The Commodore 128 can. That's because the 128 is fully compatible with the peripherals and software developed for the Commodore 64.

The 128 comes with 128K of memory (double the memory of the Commodore 64) and an enhanced keyboard. Extra features on the Commodore 128 keyboard include a numeric keypad and additional function keys.

Price: *$349.* Contact: *Commodore, 1200 Wilson Drive, West Chester, PA 19380; 215/431-9100.*

(Circle 5 on Reader Service Card.)

RESOURCE DISKS FOR TEACHERS

EASYsearch is a software series that makes it easy for Apple II users to search through information collected by the Educational Resource Information Center (ERIC).

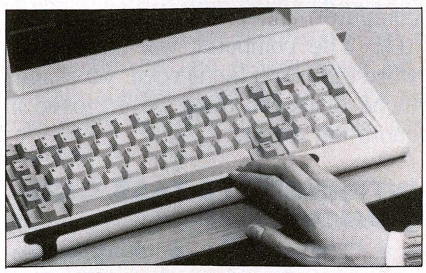
The 23 disks in the elementary set are grouped according to seven subject areas. When a subject disk is loaded, the user enters a word or phrase for the computer to search for. After the computer completes the search, it displays all the entries with this word or phrase. Each entry lists the title and summary of an ERIC article, its author, and the name and date of the periodical in which it appears.

Price: *$333 for elementary set.* Contact: *Renaissance Learning Systems, 701 Hamilton Parkway, Syracuse, NY 13214; 315/445-2508.*

(Circle 3 on Reader Service Card.)

ANTISTATIC KEYBOARD STRIP

Guard against computer shocks with the First Touch Keyboard Strip. It is made of a special material that "drains," or gets rid of, electricity that might otherwise produce static charges. The strip is lightweight and easy to install. Simply stick the adhesive-backed strip to your computer keyboard and then affix the strip's ground tabs to the computer's ground connector. (Your computer manual tells you where to locate the computer's ground connector.)



Once in place, your students can protect themselves from shocks by touching the strip periodically while they are computing.

Price: *$19.95.* Contact: *3M, PO Box 33600, St. Paul, MN 55133-3600; 612/736-2355.*

(Circle 2 on Reader Service Card.)

PRINT/IF...THEN

BY SANDRA MARKLE

Each month, the "BASIC Task Cards" column supplies you with four student activity cards that provide practice with BASIC programming skills. Two of the cards cover beginning BASIC concepts and two cards will be aimed at the intermediate level, for students who are already familiar with many BASIC commands.

Accompanying the cards is a section of teachers' notes that defines the new commands, outlines the teaching objectives, and supplies answers to the activities on the cards.

Become familiar with this month's topics by reading the teachers' notes on this page. Then cut out and laminate the Beginner task cards (numbers 3 and 4) on page 61 and the Intermediate task cards (numbers 3 and 4) on page 63. Direct each student to the task cards that correspond to his or her level of programming expertise.

BEGINNER TASK CARD COMMANDS

PRINT tells the computer to show letters, words, numbers, or other symbols on the screen. Last month, students learned how to use PRINT to calculate math problems and display the answers.

PRINT is also useful for displaying messages on the screen. For example, type PRINT "HELLO" into your computer and press RETURN or ENTER. The computer will display the word HELLO on the screen. Messages to be displayed must be enclosed in quotation marks.

INTERMEDIATE TASK CARD COMMANDS

IF...THEN tells the computer to execute a command, such as PRINT or GOTO 100, *only if* the expression specified by the IF...THEN statement is true.

The expression can be a comparison between two numbers, such as IF 3>2 THEN PRINT "GOODBYE." Or, it can be a comparison between words, such as IF A$="HELLO" THEN PRINT "GOODBYE."

The symbols for the comparison operators include:

>	Greater than
<	Less than
=	Equal to
>=	Greater than or equal to
<=	Less than or equal to
<>	Not equal to

The following program uses IF...THEN to simulate a simple conversation between the computer and the user.

```
NEW
10 PRINT "DO YOU LIKE MUSHROOMS?"
20 INPUT A$
30 IF A$="YES" THEN PRINT "ME, TOO."
40 IF A$="NO" THEN PRINT "ME, NEITHER."
50 END
```

Type the program into your computer and run it. (If you have an Atari computer, add this line: 1 DIM A$(5).)

Line 10 displays the question DO YOU LIKE MUSHROOMS? on the screen. In line 20, the computer stops and waits for you to enter input. (For more information on the INPUT command, see last month's "BASIC Task Card" column.) Enter an answer to the question, such as YES or NO, and press RETURN or ENTER. The computer automatically sets your answer equal to A$ and continues to line 30.

In this line, the computer determines if the expression A$="YES" is true or false. If you entered YES in answer to the question, then the expression is true. Because the expression is true, the computer executes the command after THEN by displaying the phrase ME, TOO. on the screen.

If you did not enter YES in answer to the question, then the expression is false. Because it is false, the computer ignores the command after THEN and skips to the next line.

Line 40 contains another IF...THEN expression. Again, the computer determines if the expression is true. If so, it displays the phrase ME, NEITHER on the screen. If not, it ignores the rest of the statement and continues to the next line. The final line ends the program.

USING THE TASK CARDS

Following are the teaching objectives and answers for each of the four BASIC task cards.

Beginner #3: Students use PRINT statements to unscramble and display steps for first aid. *Answer to Activity 1:*

```
10 PRINT "1. RAISE SCOTT'S ARM."
20 PRINT "2. PUT A PAD ON THE CUT."
30 PRINT "3. PUT ON A SECOND PAD."
40 PRINT "4. KEEP SCOTT WARM AND
   COMFORTABLE."
50 END
```

Answer to Activity 2:

```
10 PRINT "1. FIRST, PUT A SPLINT
   AROUND THE BREAK."
20 PRINT "2. TIE BANDAGES ON EITHER
   SIDE OF THE BREAK AND AT THE
   JOINTS TO HOLD THE SPLINT."
30 PRINT "3. ADD ANOTHER BANDAGE
   THAT GOES ACROSS THE CHEST."
40 PRINT "4. SLIP A SLING OVER ALL THE
   BANDAGES."
50 PRINT "5. FINALLY, KEEP SUSAN
   WARM AND COMFORTABLE."
```

Beginner #4: In Activity 1, students fill in PRINT statements to complete a conversation between Dr. Doolittle and a computer. In the second activity, students complete a program that prints out Dr. Doolittle's animal inventory. For this exercise, they must use the PRINT statement with both messages and arithmetic operators. *Answer to Activity 1: Answers will vary. Check program listing to make sure each* PRINT *statement has two quotation marks.*

Answer to Activity 2:

```
20 PRINT 12-7;" ANTELOPES"
30 PRINT 111+122;" ANTS"
40 PRINT 1+4;" ELEPHANTS
50 PRINT 23+10;" CATS"
60 PRINT 31-27;" TARANTULAS"
70 PRINT 17-2;" DOGS"
80 PRINT 14+17;" BUTTERFLIES"
90 PRINT 312-154;" FLIES"
```

Intermediate #3: Students follow a series of IF...THEN commands to find the punchline to a joke. To do this activity, they must know how to solve quantitative comparison math problems. *Answer: The punchline is "DOG GONE."*

Intermediate #4: In the first activity, students debug the IF...THEN

(continued)

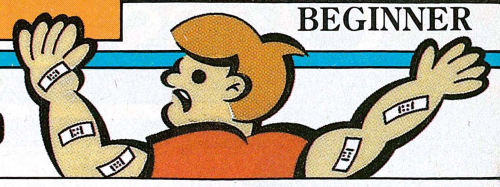
CUT OUT AND LAMINATE

3

BASIC TASK CARD

BEGINNER

BASIC FIRST AID



ACTIVITY 1

Scott has a cut on his arm. Here are four steps to treat him.

How to Treat a Bleeding Cut

1. Raise Scott's arm.
2. Put a pad on the cut.
3. Put on a second pad.
4. Keep Scott warm and comfortable.

Can you write a BASIC program that prints the four steps, in order, on the computer screen? We've given you a head start.

```
10 PRINT "1. RAISE SCOTT'S ARM."
20 PRINT _____
30 PRINT _____
40 _____
50 END
```

ACTIVITY 2

Susan has a broken arm. Here are five steps to treat her. The steps are out of order, though. Decide what order the steps go in. Then write a BASIC program to display the ordered steps on the screen.

How to Treat a Broken Arm

_____ Tie bandages on either side of the break and at the joints to hold the splint.

_____ Slip a sling over all the bandages.

_____ Finally, keep Susan warm and comfortable.

_____ First, put a splint around the break.

_____ Add another bandage that goes across the chest.

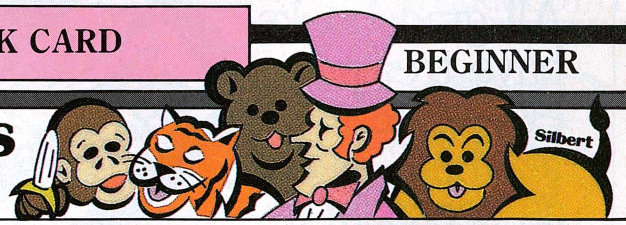
ANSWERS: Check your program listings with your teacher.

4

BASIC TASK CARD

BEGINNER

DR. DOOLITTLE'S COMPUTERS



ACTIVITY 1

Remember the story of Dr. Doolittle? He's the man who could talk to animals. What do you think would happen if he could talk to computers?

Here's a BASIC program that prints what Dr. Doolittle says to a computer. Enter the program into your computer. Then fill in the computer's replies (lines 20, 40, and 60).

```
NEW
10 PRINT "HELLO, COMPUTER! I'M DR. DOOLITTLE."
20 PRINT "_____."
30 PRINT "I'M FINE. HOW ARE YOU?"
40 PRINT _____
50 PRINT "WHAT GAME DO YOU WANT TO PLAY TODAY?"
60 _____
70 END
```

ANSWER: Check your program listing with your teacher.

ACTIVITY 2

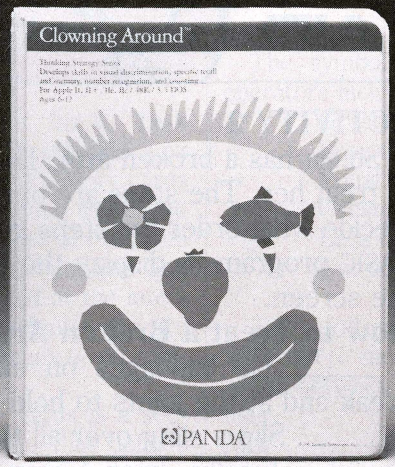
Pretend that Dr. Doolittle keeps track of his animals on a computer. Every day, he checks his computer to see how many animals he has. The program below shows the number of animals Dr. Doolittle had yesterday. Since then, some animals have arrived and others have left. (See list.) Add or subtract animals from the program so that it prints out how many animals Dr. Doolittle has today. The first one is done for you.

```
NEW
10 PRINT 7_+5;" SNAKES"
20 PRINT 12 _____;" ANTELOPES"
30 PRINT 111 _____;" ANTS"
40 PRINT 1 _____;" ELEPHANTS
50 PRINT 23 _____;" CATS"
60 PRINT 31 _____;" TARANTULAS"
70 PRINT 17 _____;" DOGS"
80 PRINT 14 _____;" BUTTERFLIES"
90 PRINT 312 _____;" FLIES"
100 END
```

New Arrivals
5 snakes
10 cats
4 elephants
17 butterflies
122 ants

Just Departed
7 antelopes
2 dogs
27 tarantulas
154 flies

Class Clown.



He gets a lot of laughs. But he gets a lot accomplished. With his help and the help of our software library for Apple and Commodore computers, learners of all ages are having a great time learning math, problem solving and pre-reading skills. To receive our complete catalog or to find the dealer nearest you, call toll free 800-238-4277. In Texas, call 214-991-4958. Or write Learning Technologies, 4255 LBJ Freeway, Suite 131, Dallas, Texas 75244.

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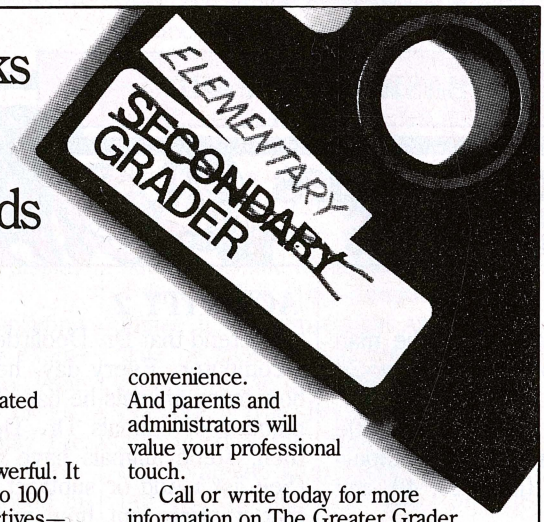
All gradebooks have treated elementary teachers' needs as secondary.



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BASIC CHALLENGE CARDS

(continued from page 60)

statements in a simple math drill program. In the second activity, they fill in the missing parts of a spelling drill program, and in the third activity, they expand the program to drill them on five more words. *Answer to Activity 1:*

```
60 IF N*X=Y THEN PRINT "GOOD
   WORK!"
70 IF N*X<>Y THEN PRINT "SORRY, IT'S
"; N*X;"."
100 IF X>10 THEN END
```

Answer to Activity 2:

```
50 IF A$="MACHINE" THEN PRINT "COR-
   RECT!"
60 IF A$<>"MACHINE" THEN PRINT
"SORRY, IT'S 'MACHINE'."
```

Answer to Activity 3: Answers will vary. One solution is to add six line statements per new word that are like lines 10 to 60. Simply replace "MACHINE" with the new word. (END should still be the last line.)

Sandra Markle is the author of several computer books for children. Her most recent book, in which she is coauthor with her husband William Markle, is *In Search of Graphics* (Lothrop, Lee & Shepard; New York, NY).

ANSWERS TO "MICRO TIMES"

(pages 2a, 4a)

Bug Buster

Here is a corrected version of the STAR procedure.

```
TO STAR
  FORWARD 50 RIGHT 144
  FORWARD 50 RIGHT 144
  FORWARD 50 RIGHT 144
  FORWARD 50 RIGHT 144
  FORWARD 50 RIGHT 144
END
```

Thanksgiving Menu Reader

1. Turkey, white meat, no gravy; **2.** Roasted ham, no mustard; **3.** Turkey, dark meat, no gravy; **4.** Boiled ham, mustard; **5.** Turkey, dark meat, gravy; **6.** Roasted ham, mustard.

CUT OUT AND LAMINATE

INTERMEDIATE

3 BASIC TASK CARD

TRULY ??PUZZLING??

The IF...THEN statements below spell out the answer to a riddle. Do the math problems in each statement on a separate piece of paper. Then, if the first part of the statement is true, print the letter that appears in the second part on your paper. If the first part is false, don't write anything.

Question: What did the man say when he couldn't find his dog?

Answer:

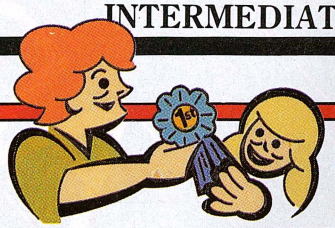
IF 22-7 < 15+3 THEN PRINT "D"
IF 7*3 > 63/9 THEN PRINT "O"
IF 16/2 > 36/4 THEN PRINT "W"
IF 7*7 < 126-76 THEN PRINT "G"
IF 81-9 < 6*3 THEN PRINT "I"
IF 92-73 > 6*3 THEN PRINT "G"
IF 8*3 > 128/4 THEN PRINT "A"
IF 88-15 > 6*9 THEN PRINT "O"
IF 12*12 > 40-15 THEN PRINT "N"
IF 16/8 > 16/4 THEN PRINT "V"
IF 525/175 < 2*2 THEN PRINT "E"

ANSWER: Check your answer with your teacher.

INTERMEDIATE

4 BASIC TASK CARD

PRACTICE MAKES PERFECT!!



ACTIVITY 1

The following program helps you practice multiplication problems. Before you can use it, however, you must get rid of a few bugs. Each of the IF...THEN statements in the program (lines 60, 70, and 100) has a mistake in it. Find and fix the mistakes. Then type in and run the program on your computer.

```
NEW
0 REM MULTIPLICATION PRACTICE
10 X=0:N=0
20 PRINT "ENTER A NUMBER FROM 1 TO 20."
30 INPUT N
40 PRINT "WHAT IS ";N;" X ";X;"?"
50 INPUT Y
60 IF N*X=Q THEN PRINT "GOOD WORK!"
70 IF N*X<>Y PRINT "SORRY, IT'S ";N*X;"."
90 X=X+1
100 IF X>10 IT'S OKAY TO END
110 GOTO 40
```

ACTIVITY 2

Following is part of a program to help you practice spelling. Fill in the missing lines on a separate piece of paper. Then type in and run the program on your computer.

```
NEW
0 REM SPELLING PRACTICE
10 PRINT "THE WORD IS 'MACHINE.' PRESS RETURN OR ENTER."
20 INPUT Z$
30 HOME
40 PRINT "TYPE IN THE WORD.":INPUT A$
50 IF ____ = ____ THEN PRINT "_____"
60 IF ____ <> ____ THEN PRINT "_____"
70 END
```

Note: This program will run on Apple computers. Make these changes for other computer brands.

Atari: Change HOME to PRINT CHR$(125) in line 50. Add this line: 1 DIM A$(25),Z$(1).

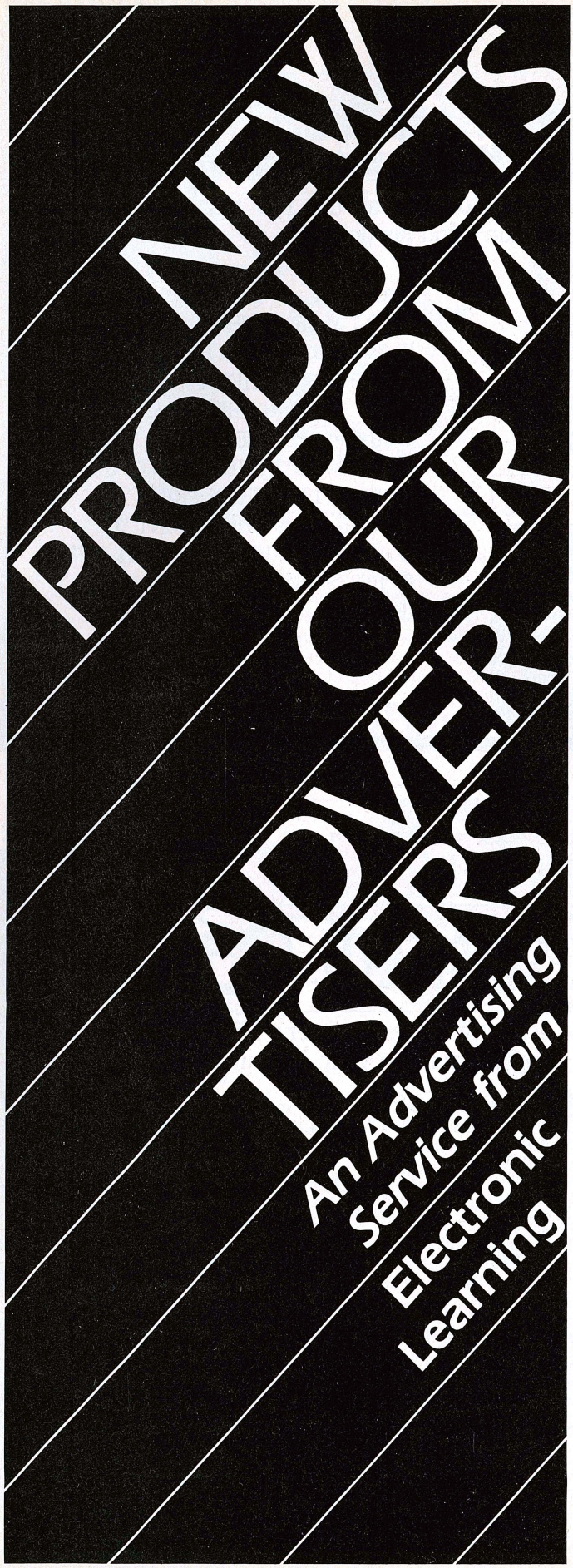
Commodore: Change HOME to PRINT CHR$(147) in line 50.

Radio Shack and IBM: Change HOME to CLS in line 50.

TI: Change HOME to CALL CLEAR in line 50.

ACTIVITY 3

Change the spelling practice program in Activity 2 so that it teaches you to spell five more words.



◆ SOFTWARE ◆

MANAGEMENT SOFTWARE HELPS INDIVIDUALIZE INSTRUCTION

Instructional Management System Plus (IMS Plus) microcomputer software from National Computer Systems monitors student progress in curriculum programs obtained from textbook publishers or locally developed criterion-referenced tests. By relating instructional resources to specific skills, IMS Plus software enables teachers to more efficiently plan individualized instruction. A variety of instructional management reports provides quick feedback for teachers, administrators, students, and parents.
Circle Reader Service Number 107.

◆

COMPUTER GRADEBOOK MADE FOR ELEMENTARY TEACHERS

Ability Systems announces a new computer gradebook expressly designed for the elementary teacher. Dubbed *The Greater Grader*, the teacher-friendly program will track students in countless assignments, each of which may be associated with several categories from up to 100 teacher-defined report card items, subjects, and objectives. For efficiency, *The Greater Grader* does away with tedious menus and offers on-screen help pertinent only to the task at hand. Reports can include letter, number, or comment grades, and a wealth of statistical detail supporting them. The program is available for the Apple II family of computers.
Circle Reader Service Number 114.

◆

BRITANNICA OFFERS NEW WRITING TOOLS

Encyclopedia Britannica's new eight (8) disk program, *Interactive Writing Tools*, provides students with extensive writing help by serving as the students' senior partner in writing stories. To enable the young writer to gradually assume more of the writing task, later activities offer decreasing levels of support and the *Interactive Writing Tools* eventually becomes only a silent partner in the student's writing efforts. The price of the program is $279.
Circle Reader Service Number 116.

◆

INDIVIDUALIZED PROGRAM ENHANCES LIBRARY SKILLS

Combase, Inc. announces the availability of a comprehensive computer-based

curriculum that provides individualized, self-paced learning of the skills needed to use library and media facilities. Called *Elementary Library Media Skills,* the program has 24 computer-based lessons grouped into four modules: (1) Discovering Available Resources; (2) Organization of Resources; (3) Locating Resources; and (4) Research and Study Skills. The teaching guide includes reproducible student activity sheets to reinforce the skills taught. The cost of the complete program with 12 disks is $350.
Circle Reader Service Number 106.

♦

SCHOLASTIC PUBLISHES NEW READING SERIES

Scholastic Inc. is introducing *Success with Reading* for grades 3-6. Based on the cloze reading principle, *Success with Reading* presents passages from six children's books. Each passage has selected words and letters removed. The students have to draw on context, syntax, spelling, and vocabulary clues to fill in the missing letters and words. One program disk plus back-up and one data disk (grade specific) costs $99.95 and includes a User's Handbook with Reference Guide, Student Notes, and Teachers' Guide. Additional data disks for different grade levels (2-4,3-5,4-6, and 5-7) are $59.95 each. The complete four-grade package is $219.95.
Circle Reader Service Number 117.

♦

SIMULATIONS TEACH EARTH, LIFE, PHYSICAL SCIENCES

DC Heath and Company has just published seven exciting simulations designed to help teach and reinforce the basic concepts presented in earth, life, and physical science. Students develop process skills as they interact with the computer and make observations, solve problems, interpret data, draw conclusions, and test theories. Although correlated to Heath's Junior High Science text, these programs can be used to enhance any science program. Available for the Apple Computer, each program sells for $66 and includes a back-up disk and comprehensive Teacher's Manual, and comes with a 30-day preview.
Circle Reader Service Number 108.

♦

DATA COMMAND RELEASES EASY AUTHORING PROGRAM

Data Command has released *Picture Puzzles,* an authoring program for teachers new to computers. With *Picture Puzzles,* teachers need no programming ability; authoring is done by following a few simple instructions on the screen. Since the master disk may be copied as many times as desired, schools can build a limitless library of learning activities using the program. Adaptable to any subject, the program comes with over 3,000 ready to enter clozure statements in language arts, math, social studies, and science. Seventy-two colorful curriculum-related pictures are available for the program. The *Picture Puzzle* program is priced at $59.95; additional picture disks may be added as desired for $19.95 each.
Circle Reader Service Number 109.

♦

DESIGNWARE SHIPS NEW LEARNING TOOL

From DesignWare comes a versatile, easy-to-use, and powerful learning tool for high school, college, and adult students. Called *Remember!,* the program assists students in retaining and learning relationships, facts, sequences, and lists. Students can enter their own study material quickly and easily with on-screen instructions and built-in help. Then, students can study the material until they remember it, using the three modes of study in the program—familiarization, practice, and test. Students can also personalize the program to their learning style, adding written, musical, or pictorial hints to help them remember. *Remember!* is available for the Apple II family of computers (64K) and IBM PC and PCjr (128K) with one disk drive for a suggested retail price of $79.95. The Commodore 64 version will be available soon.
Circle Reader Service Number 142.

♦

DAVIDSON INTRODUCES ALGEBRA PROGRAM

Alge-Blaster! is a comprehensive algebra program for prealgebra and algebra students. It contains over 650 problems in five subject areas: positive/negative numbers, monomials and polynomials, factoring, and solving both equations and systems of equations. An easy-to-use editor makes it possible to enter additional problems to use with the program. The program also features colorful graphics displays and sound and is available for the Apple II family at $49.95.
Circle Reader Service Number 118.

♦

SCIENCE PROGRAM SIMULATES ORBITING SPACE STATION

Human Engineered Software (HesWare) is proud to introduce Project: Space Station, an entertaining science simulation product for

the Apple II and Commodore 64 comptuers. Within the program, students are given all of the tools and data necessary to design, launch, assemble, and operate an orbiting space station. Variables including schedules, government funding, crew selection (from crew Vitae) and changing weather patterns combine to make each construction unique. The product comes complete with tutorials, curriculum guide, and student reference materials. Price: $24.95 (Commodore); $39.95 (Apple II).
Circle Reader Service Number 112.

♦

MICRO POWER & LIGHT INTRODUCES SPANISH WORD DRILL

With *Word Prep (Spanish)* from Micro Power & Light, students can develop and test their Spanish vocabulary, using any of four presentation formats. One thousand pairs of Spanish and equivalent English terms are included, plus there is room on the disk for 400 more, tailored to the student's own specific interests or requirements. The program supports use of the entire Spanish character set, including, by key substitution, the nine characters not available on the standard keyboard.
Circle Reader Service Number 119.

20 PROGRAMS RELEASED FOR PRESCHOOL THROUGH GRADE 8

Learning Technologies, Inc. is introducing 20 new programs for the Commodore and Apple computers. The new programs are directed at teaching pre-reading, memory, and problem solving skills as well as early math concepts for children in preschool through grade 8. In addition, each program offers something more—a Learning Kit of supplemental learning aids. Each kit contains a full color poster which features characters from the software programs, custom lesson plans that help define skills and learning objectives presented in each program, reproducible worksheets which contain activities to support and extend the activities presented in the software, and reproducible student management charts to record learner progress. All programs retail at $19.95.
Circle Reader Service Number 113.

♦

AUTHORING SYSTEM OFFERS EASE-OF-USE, FLEXIBILITY

Bainum Dunbar Brainz is a completely menu driven authoring system for Apple IIe and IIc, designed to allow the teacher maximum flexibility with minimum learning time. It offers graphics, four languages (English, Spanish, French, German), easy to follow screen instructions, and six exercise types. Ideal for special education. Large type version available soon.
Circle Reader Service Number 120.

♦

PUBLISH A NEWSPAPER WITH *THE NEWSROOM*

The Newsroom, published by Springboard Software Inc., lets you design, produce and print out your own newspaper for family, club, class, school or business. Letter- or legal-size output is complete with banner, headlines, pictures, and text for a truly professional look. You may position and reposition pictures as you wish; text will automatically rearrange itself around them. Challenges organizational skills, writing abilities, and creative process. Available for Apple II family, Commodore 64, and IBM PC. Suggested retail price: $59.95.
Circle Reader Service Number 110.

♦

MIDWEST SOFTWARE RELEASES DATABASE

Midwest Software has released a powerful and easy-to-use database called *Filemaster.* The program creates records that can contain up to 254 characters spread over 28 different fields. A total of 654 records of maximum size fit on one disk, making the program ideal for school records. The "Batch" mode eliminates tedious record updating (students can be promoted from year to year). A Report Writer function allows the creation of custom form letters using the information in each record. The complete package includes a data disk of sample databases and full tutorial, and is available for the Commodore 64 and the Apple II family. Disks only $49.50.
Circle Reader Service Number 115.

♦

MINDSCAPE'S SOLAR SYSTEM ENTERS THE CLASSROOM

Utilizing advanced computer technology, The Mindscape School Group and Tom Snyder Productions have produced a software program that is an actual real-time simulation of our solar system. Called *The Halley Project: A Mission in Our Solar System,* the program asks students to identify constellations and navigate by the stars to complete a series of space missions. Pairs or teams of students may use "The Halley Project" at their own pace to master basic facts about the solar system, including details on

Halley's Comet and its orbit; an understanding of orbital motion; relative size, position, and orbits of planets and moons; locations of constellations; and how eclipses occur. The program is available for the Apple IIe, IIc, or II+ with 48K of memory, as well as Atari and Commodore 64/128 computers. All models require a single disk drive. A joystick is needed for Commodore and Atari versions, but is optional on Apple. The cost of the program, including a backup disk and comprehensive teacher's manual, is $49.95.
Circle Reader Service Number 140.

BOOKS

WEST PUBLISHES JR HIGH LITERACY/ PROGRAMMING BOOK

A unique mixture of computer literacy and BASIC programming for grades 7-9 can be found in *Computer Fundamentals with BASIC Programming* written by Colleen J. Mandell and Steven L. Mandell and published by West Educational Publishing. The book is only one in West's Computer Education Series for students from kindergarten through high school. A free catalog is available.
Circle Reader Service Number 143.

PERIPHERALS

PLATO/WICAT LINKS UP TO CLASSROOM MICROS

PLATO/WICAT Systems Company has developed a Micro Adapter that links IBM PC, PCjr, Commodore 64, and the Apple II family microcomputers to the PLATO/WICAT Professional System 300, a central computer with the equivalent of over 1,000 diskettes of educational software on a hard disk. This means schools can "mix-and-match" technologies in computer labs to provide the comprehensive curriculum, which includes reading, writing, math, and English as a second language courses, as well as the testing and reporting programs available from PLATO/WICAT Systems Company. Cost for PLATO/WICAT professional systems starts at $44,950. Schools will receive a pricing credit on the cost of a Professional System 300 for using their own micros.
Circle Reader Service Number 144.

NEW COMPUTER PROJECTOR ENLARGES SCREEN DISPLAY

The LimeLight computer projector from VIVID Systems Inc. will enlarge your computer's screen display, making it big enough and sharp enough for an entire class to read the text. Simply connect the projector to any computer, load the software, and watch the same monochrome display that's on the monitor appear on a wall surface or projection screen. A complete LimeLight system costs $3,950.
Circle Reader Service Number 111.

VIDEO NET — WORKING DEVICE LINKS COMPUTERS MONITORS

Applied Computer Systems has developed the LINK Master Standard unit, a video networking device that lets a computer lab teacher view an individual student's screen or transmit an identical display to every monitor in the lab. An upgraded Special Switch unit allows teachers to communicate with each monitor individually. Each LINK unit connects five monitors. An unlimited number of monitors can be connected to the system by installing additional units. LINK is compatible with any computer that uses a detached video device.
Circle Reader Service Number 141.

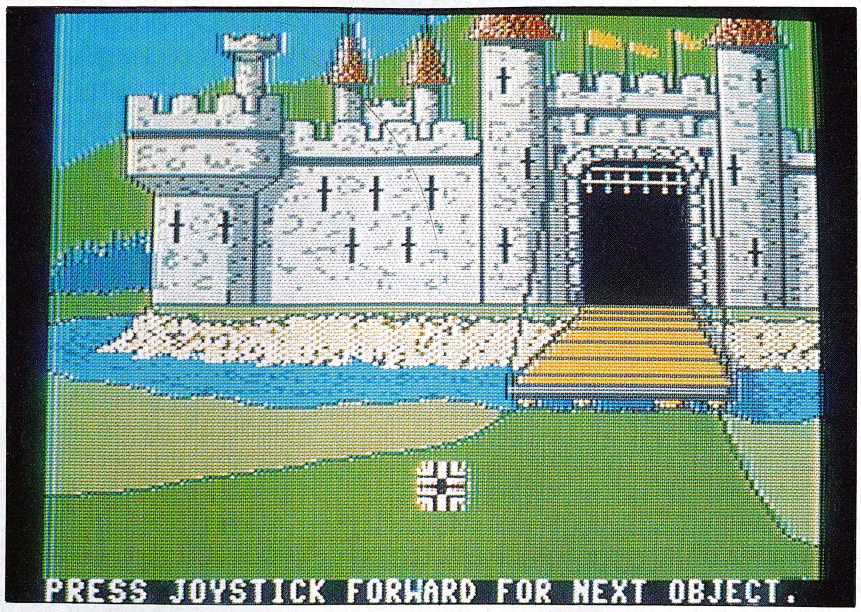
MISCELLANEOUS

CORVUS TO GIVE FREE NETWORKS TO SCHOOLS

Corvus Systems, together with a number of key software publishers, is awarding more than $300,000 worth of networking hardware and educational software to ten educator sites across the nation. Schools and teacher training sites with five or more Apple II computers are eligible for participation in Corvus' national school award program. Completed application forms are due November 27, 1985, and the final award winners will be announced in December 1985. Each winner will receive installation and service of an Omninet network with 45 megabytes of storage, print enhancement, complete backup, and the management of individualized instruction in reading, language arts, mathematics, and foreign language. Logo and word processing options are also available.
Circle Reader Service Number 145.

SOFTWARE SHOWCASE

SOFTWARE RECOMMENDED FOR TEACHERS, BY TEACHERS



In Just Imagine, players use a joystick to place objects in a scene they choose.

JUST IMAGINE

Computer: Commodore 64 (joystick required)
Topic: Language arts
Grade Level: 3—6

Just Imagine is a tool for creating and writing animated stories on the computer. It combines excellent graphics, sound, and animation to bring children's stories to life.

The program is highly interactive. Students use a joystick to select one of nine backgrounds, from a city street to a jungle scene, for their stories. Next, they pick one or more stationary objects (from 48 options that include a moon buggy and a trampoline) and three animated objects (from 25 options including a jogger and a spaceship) to put in the scene.

Students use a joystick to plot each animated object's path on the screen. Finally, they use the built-in word processor to write a story that accompanies the scene they created.

Once students complete a story, they can print the text on paper or watch the story "come to life" on the screen with the story playback option. They can then play it repeatedly, save the story on disk, or start a new story on the computer.

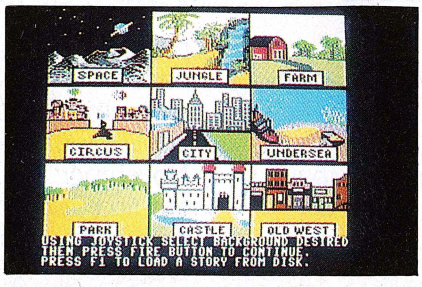
Just Imagine is versatile and easy to use. The large bank of graphics characters make each story different from the last one. In addition, children move easily from the graphics section to the word processor.

The program's documentation is quite good. The writing is simple and easily read by either teacher or student. It would be helpful if the manual explained that the program automatically puts you in the word processor once you develop your picture.

Just Imagine would fit well in an upper elementary or middle school classroom as a language arts tool. It's a wonderful program for motivating students to write creatively.

Price: $34.95
Policy: $5 replacement; preview through regional resource centers.
Source: Commodore Educational Software, 1200 Wilson Drive, West Chester, PA 19380; 215/431-9100.

Evelyn Woldman, Adjunct Faculty
Lesley College, Cambridge, MA



Students choose from nine story backgrounds in Just Imagine.

ROCKS

Computer: TRS-80 Models I,III; Apple II series
Topic: Science
Grade Level: 3–6

Rocks is a science program on the properties of minerals. To use it, you must also purchase a $39 kit that contains rocks and special rock testing equipment.

The software provides directions for experimenting with rocks in the kit and tests students' knowledge of rock properties and uses. It has four parts.

The first part is a multiple choice quiz on the properties of rocks, such as the color, weight, surface appearance, crystal shape, and hardness of specific kinds. To answer some of the questions, students must conduct scientific experiments on rocks. For example, students rub rocks on a piece of porcelain tile called a *streak plate* to help them answer questions about the color of the streaks that rock rubbing produces.

In Part Two, students use their knowledge of rock properties to describe particular rocks in the kit. The computer uses the students' descriptions to identify the rocks. As the computer identifies each rock, students place the rock on top of its appropriate name card.

Part Three is a multiple choice quiz on the uses of rocks.

Part Four is a 20-question review test of all the material covered by the program.

An eight-page teacher's guide comes with the program. It provides background information on rocks as well as supplementary classroom activities.

Rocks use a hands-on, experimental method that meets the needs of most science curriculums. The software and kit provide all the materials necessary for a complete study unit on rocks.

Price: $18 for disk; $39 for kit
Policy: $5 backup; 30-day preview.
Source: Spectrum Software, 75 Todd Pond Rd., Lincoln, MA 01773; 617/893-9130.

Barbara Devir, Fourth Grade Teacher
Woodside School, Peekskill, NY

CLASSMATE

Computer: Apple II series; IBM PC, PCjr
Topic: Record keeping
Level: Adult

Classmate makes a teacher's record keeping tasks easier and more professional. Among other things, the program allows teachers to store and update a variety of information about students, to calculate grade averages for them (either straight or weighted), and to analyze the grades of an individual student, an entire class, or a particular exam.

Classmate is extremely easy to use. It is completely menu-driven and includes many on-screen prompts. You start by entering a class roster of up to 51 names. The program allows you to sort a roster by students' names or identification numbers, to save a roster on your own disk, and to print it out at any time.

You can enter up to 30 grades per student on a roster. You can also enter attendance figures and your own comments on student performance. The manual suggests 30 two-letter codes for student performance, such as AU for absence unexcused. Any comments or codes can be excluded from a screen display or printout if you wish.

The program also allows teachers to revise or permanently delete student information, such as grades, attendance, or codes, at any time.

One of the most helpful features of *Classmate* is its ability to quickly compute cumulative averages and to display grade distributions in chart and graph form.

Although it is not necessary for operating the program, the documentation is comprehensive and clear. Organized in a sturdy looseleaf binder that is small enough to be placed alongside the computer, the manual leads the user step by step through the program's functions.

Any teacher who must maintain student records on a daily basis will find *Classmate* to be a valuable tool.

Price: $49.95
Policy: $10 backup; 30-day preview.
Source: E. Davidson and Associates, 3135 Kashiwa St., Torrance, CA 90505; 800/556-6141. In California, call 213/534-4070.

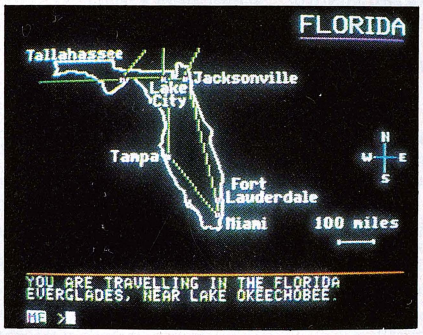
Stan Solomon, Computer Science Teacher
Manhattan Center for Science and Mathematics, New York, NY

CROSSCOUNTRY USA

Computer: Apple II series
Topic: Social studies
Grade Level: 5—adult

In this geography game, students drive a truck across the country. On the way, they must pick up commodities that the dispatcher (computer) randomly asks for. Students must pick up the commodities from cities in which they are produced. For example, they can pick up oranges in Tampa, Florida, or in Los Angeles, California.

The simulation is very realistic. Students must plan their journey carefully to minimize the expenses of the trip. They must decide when to stop for gas, food, and sleep. The computer keeps track of expenses, mileage, and time.



Students type codes that indicate directions in Crosscountry USA.

When students reach any of 180 cities, a state map appears on the screen to help them determine which direction to go next. Drivers communicate with the computer by typing directions, such as "DRIVE NORTHWEST," "NW," and "GET GAS." They can also type special commands such as "INVENTORY" to survey their expenses and the commodities they have collected so far and "POLITICAL MAP" to see their position on a U.S. map. The program understands 250 different words.

From time to time, weather bulletins, health updates, and population reports appear on the screen. Students must decide how to respond to each message. For example, if the computer announces a thunderstorm, students must instruct the computer to turn on the truck's windshield wipers.

One or two students can participate in the simulation. Each player's turn ends after 24 simulated hours or after he or she picks up a commodity. Kids can save games on their own disks at any time and return to them later.

A built-in authoring system allows players to customize the program. For example, students can select starting cities, destination cities, commodities, and time of year for travel, instead of having them randomly assigned by the computer. Teachers can also reassign the 52 commodities among the 180 cities included in the program.

The simulation does a wonderful job of teaching map reading as well as U.S. political, economic, and physical geography skills. The program's technical design is excellent. Support materials include an instruction book, a large paper map, 10 small maps, and a commodity-city cross reference card.

Crosscountry USA is an excellent example of how simulations can be used to teach social studies and problem solving skills.

Price: $39.95; $99 for lab pack with five disks, five maps, and five commodity-city reference cards.
Policy: $10 backup; 30-day preview.
Source: Didatech Software, Suite 549, 810 West Broadway, Vancouver, BC, Canada V5Z 4C9; 604/687-3468.

Philip Ingber
District Computer Coordinator
Nyack Public Schools, Nyack, NY

CORRECTION: In our September 1985 review of *Fish Scales* (published by Developmental Learning Materials), we mentioned that the program's sound effects can be distracting when the program is used in a classroom setting. We neglected to mention that the sound can be turned off to avoid such distraction. ■

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Circle 20 on Reader Service Card.

CONVERSION CHART

HOW TO CONVERT T & C PROGRAMS TO OTHER MACHINES

The *Healthy Heart* program (page 50) is written for Apple computers. Use this conversion chart to adapt the program listing for use on Color Computers, Commodore 64 computers, and TRS-80 Models III and 4. Because subscripted string variables, such as N$(S), work differently in Atari BASIC, conversions for Atari computers are too complicated to include.

PROGRAM OF THE MONTH: *HEALTHY HEART,* **page 50 (Apple)**

Color Computer, TRS-80 Models III/4

1. Substitute the following lines for corresponding lines in the Apple program listing:

```
10 CLS:CLEAR 5000
560 INPUT Z$
960 CLS
1000 PRINT "TEST RESULTS.":INPUT Z$
1190 PRINT " WOULD YOU LIKE TO RUN THE PROGRAM"
```

2. Change HOME to CLS in lines 100, 320, and 490.
3. Change "PRESS RETURN" to "PRESS ENTER" in lines 90, 110, 310, 350, 380, 400, 420, 440, 450, 540, and 990.
4. Change PRINT to LPRINT in lines 570 through 950 and in lines 1010 through 1180.
5. Set your printer for maximum line length. (See user's manual for specific commands.)

Commodore 64

1. Substitute the following lines for corresponding lines in the Apple program listing:

```
10 PRINT CHR$(147):CLR
560 INPUT Z$:OPEN 1,4
960 CLOSE 1:PRINT CHR$(147)
1000 PRINT "TEST RESULTS.":INPUT Z$:OPEN 1,4
1190 CLOSE 1:PRINT " WOULD YOU LIKE TO RUN THE PROGRAM"
```

2. Change HOME to PRINT CHR$(147) in lines 100, 320, and 490.
3. Change PRINT to PRINT#1, in lines 570 through 950 and in lines 1010 through 1180. (Don't forget the comma after #1.)
4. Set your printer for maximum line length. (See user's manual for specific commands.)

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